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LYMPHATIC LEUKEMIA

REPORT OF A CASE APPARENTLY LIMITED TO THE SKIN, SUPERFICIAL LYMPHATIC GLANDS AND BLOOD STREAM

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Leukemic infiltration of the skin has been described innumerable times, and the diversified clinical manifestations with which the pathologic process may be associated form a group of dermatoses that so far have defied clear classification. The lymphatic form is the most common, and it is in cases of this form that apparently similar infiltrations of the skin may produce, or occur concomitantly with, a varied array of diagnostic entities. Recently there has been a tendency to group these diseases under one diagnostic term—the lymphoblastomas—and merely to describe the attendant clinical manifestations. Several workers [1] have included under the term lymphoblastoma such conditions as lymphatic leukemia, Hodgkin's disease, mycosis fungoides and lymphosarcoma—to mention only those most usually considered as interrelated.

When the supposedly pathognomonic blood picture of lymphatic leukemia is present in a patient showing histologic evidence of cutaneous infiltration, the diagnosis of lymphatic leukemia associated with leukae-

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1. (*a*) Goeckerman, W. H., and Montgomery, H.: Cutaneous Lymphoblastoma, Arch. Dermat. & Syph. **24**:383 (Sept.) 1931. (*b*) Warthin, A. S.: The Genetic Neoplastic Relationship of Hodgkin's Disease, Aleukemic and Leukemic Lymphoblastoma, and Mycosis Fungoides, Ann. Surg. **93**:153, 1931. (*c*) Gans, Oscar: The Skin Picture in Hematopoietic Diseases, Arch. Dermat. & Syph. **16**:1 (July) 1927. (*d*) Keim, H. L.: Universal Leukemia Cutis, ibid. **10**:579 (Nov.) 1924. (*e*) Keim, H. L.: The Lymphoblastomas, ibid. **19**:533 (April) 1929. (*f*) Fraser, J. F.: The Interpretation of Mycosis Fungoides as a Variety of Lymphosarcoma, ibid. **11**:425 (April) 1925. (*g*) Miller, H. E.: Lymphogranulomatosis Cutis, ibid. **17**:156 (Feb.) 1928. (*h*) Rolleston, H.: Skin Manifestations Associated with Leukemia, Brit. J. Dermat. **36**:407, 1924.

mia cutis is made. Moreover, some authors,[2] supporting Ribbert's theory of the autochthonous nature of the cellular infiltrate, are willing to make a diagnosis of leukaemia cutis when there is no abnormal blood picture or autopsy evidence of generalized lymphatic leukemia. The concept of the aleukemic phase of the disease of course accounts for the cases in which there are cutaneous manifestations without the typical changes in the blood, but in those cases the previous or subsequent course of the disease or the histologic picture in the lymph glands and other organs substantiates the diagnosis.

In the case reported here the disorder was apparently unusual in that clinically it appeared to be pemphigus foliaceus while the histologic picture in the skin resembled that associated with leukemia. This diagnosis was strengthened by the total and differential leukocyte counts and by changes in superficial lymph glands, but postmortem examination failed to show the typical generalized picture of lymphatic leukemia.

REPORT OF CASE

R. W., a Negro, aged 66, married, a farmer, was admitted to the University of Virginia Hospital on Jan. 15, 1934, the chief complaint being of a generalized cutaneous eruption of seven years' duration. His past history was essentially irrelevant except for an attack of acute diarrhea many years before and the presence of gonorrhea, apparently without sequelae, forty years previously. His family and marital histories apparently had no bearing on the disorder.

The present illness began seven years before when the patient was working on highway construction and had had his arms covered with tar almost continuously. His lower extremities, however, were protected by boots. The first symptom noticed was itching between the scapulae; within a short time this was followed by a scaly eruption on the backs of the hands and by the appearance on many circumscribed areas of what apparently were vesicles and bullae, the involved areas extending from the knees to the toes. The legs became quite raw and had to be bandaged almost constantly. The patient was forced to give up his usual occupation, and he spent his time on a farm doing light work. The condition regressed somewhat as a result of treatment with various local medicaments but never completely disappeared. It constantly affected more and more of the surface of the skin until five months before admission the entire body was involved in the scaly itching eruption. Additional complaints were that within the past several months nocturia had developed, occurring from three to four times; there was some difficulty in starting urination; occasionally the patient suffered from mild palpitation, and he had recently lost some strength but no weight.

The patient was exceptionally well developed and well nourished for his age. He was not acutely ill, and his only discomfort was moderate pruritus. Examination of the ears, eyes, nose and throat gave negative results. The teeth were dirty and carious, and the gums were deeply pigmented. The heart sounds were distant, and there were occasional extrasystoles. The blood pressure was 120 systolic and 85 diastolic. The chest was normal. The abdomen was normal

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2. Hirschfeld, Hans: Ueber isolierte aleukämische Lymphadenose der Haut, Ztschr. f. Krebsforsch. **11**:397, 1912; cited by Goeckerman and Montgomery.[1a] Payenneville, J., and Cailliau, F.: Leukemia Cutis of the Mixed Type, Ann. de dermat. et syph. **1**:844, 1930. Keim.[1e] Gans.[1c]

except for the fact that the liver and spleen could be palpated from 1 to 2 cm. below the costal margins, but the organs were not tender. The prostate was moderately and diffusely enlarged and firm but not stony hard. The genitalia were normal. The cervical, supraclavicular, axillary, epitrochlear and inguinal glands were all moderately enlarged. They were firm, discrete and not tender on manipulation. The skin, which was normally a café au lait color, was practically universally involved in the eruption (fig. 1). The flexor surfaces of the

Fig. 1.—Photograph taken on the patient's admission, showing universal involvement. A few bullae are seen in the region of the scapulae.

arms and legs were perhaps most severely affected, while the face, scalp and genitalia showed only a fine dry exfoliation. In the areas of most pronounced involvement the skin showed a splotchy erythema with diffuse dryness, thickening and marked exfoliation. Over the body, arms and legs were many waxy pea-sized papulonodules which presented thick exfoliation (fig. 2). Over the same areas could be found several ruptured and intact hemorrhagic vesicles and small bullae and fewer superficial ulcerated areas (fig. 3). The bases of the ruptured bullae remained raw and presented a serosanguineous ooze. The epidermis was easily removed or slipped off by slight trauma (Nikolsky's sign).

On admission the patient's temperature was 99.4 F.; the pulse rate was 72, and the respiratory rate was 20. Urinalysis gave entirely normal results except for from 2 to 4 pus cells per high power field. Examination of the stool gave

Fig. 2.—Flexor surface of the forearm, showing the most marked involvement. Papules, papulonodules and dense exfoliation may be seen.

Fig. 3.—Knee, showing two ruptured bullae and the serpiginous purpuric eruption.

negative results. The phenolsulfonphthalein test showed a return of 70 per cent of the dye at the end of two hours. The cerebrospinal fluid was clear, was under normal pressure and formed no clot. There were eighteen cells, predominantly lymphocytes, per cubic millimeter of fluid. The globulin content was not increased, and Fehling's solution was reduced with 5 drops. The Wassermann reaction of

the spinal fluid was negative, and the colloidal gold curve was 0011111000. The Wassermann and the Kahn reaction of the blood were negative. The urea content of the blood was 48 mg.; the sugar content was 133.3 mg.; the chloride content was 440 mg., and the uric acid content was 3.8 mg., per hundred cubic centimeters. The calcium and the phosphorus content of the blood were normal. The bleeding and the clotting time were each three minutes. The hemoglobin content was 90 per cent (Dare); the red cells numbered 4,150,000, the normoblasts 1 and the platelets 318,000. There was a marked increase in the number of white cells, the count being 32,600. The results of the differential count were as follows: 0.25 per cent band cells, 8.5 per cent segmented polymorphonuclears, 0.75 per cent lymphoblasts, 10 per cent large lymphocytes, 76.75 per cent small lymphocytes,

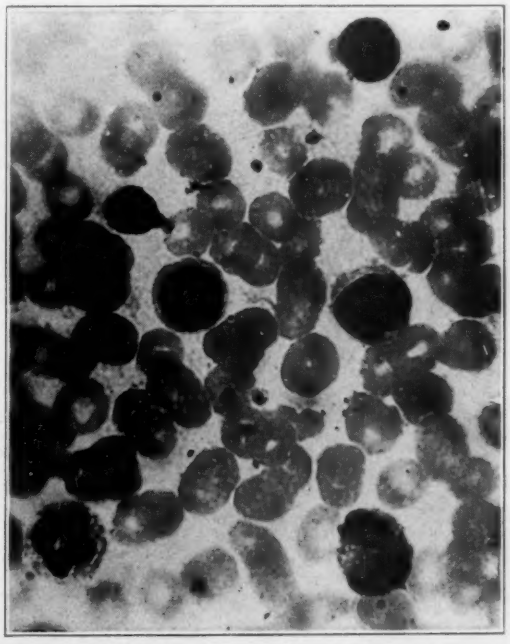

Fig. 4.—Typical field from a smear of the peripheral blood, showing 4 lymphocytes and 2 polymorphonuclear leukocytes; × 740.

0.75 per cent large mononuclears, 0.5 per cent transitionals, 2.25 per cent eosinophils and 0.25 per cent basophils. Peroxidase and vital stains were used to check the white cell elements. The former revealed 9 per cent granulocytes and 91 per cent nongranulocytes, while vital staining a few days later showed 19 per cent polymorphonuclears, 69 per cent small lymphocytes, 7 per cent large lymphocytes, 1 per cent mononuclears and 4 per cent eosinophils. All the cells counted as large lymphocytes were young cells, while quite a few small lymphocytes were slightly younger than those usually seen in peripheral blood (fig. 4). The phytopharmacologic test [3] of the blood was performed twice for us by Dr. I. R. Pels. Both of

3. Pels, I. R., and Macht, D. I.: Phytopharmacologic Examination of the Blood in Pemphigus and in Some Other Diseases of the Skin, Arch. Dermat. & Syph. **19**:640 (April) 1929; Phytopharmacology of Pemphigus and Other Dermatoses, ibid. **23**:601 (April) 1931.

the readings were within normal limits. The first was 67 per cent and the second 72 per cent.

Histologic Examination.—A small wedge of skin (fig. 5) and an entire enlarged epitrochlear gland were removed from the right arm for microscopic study, the results of which were reported as follows:

"1. Skin. The epidermis is rather thin, the surface layers are keratinized and exfoliating in thin sheets. The epidermis is infiltrated by lymphoid cells. The dermis is thickened and densely infiltrated by lymphoid cells of variable structure; many appear to be young forms. The blood vessels of the underlying subcutaneous tissue exhibit swollen endothelium with dense perivascular deposits of lymphoid cells.

Fig. 5.—Typical section of the skin, showing the dense lymphocytic infiltrate, flattening of the papillae and exfoliation of the epidermis with cellular invasion; × 95.

"2. Lymph Node. The normal architecture is completely changed. Germinal follicles are almost completely absent. The lymph sinuses of the interior portion are filled with young lymphoid cells or compressed with no lumen present. The entire gland is composed of closely packed lymphoid cells, including many young forms. Eosinophils are rather frequent. The capsule is not invaded, but the peripheral lymph sinuses are open and distended by lymph containing lymphoid cells, some polymorphonuclear neutrophils and numerous endothelial cells. Endothelial proliferation is marked and with the eosinophilic picture simulates early

Hodgkin's disease, but the skin infection is possibly responsible for both of these features."

A few days after admission a small young bulla was found on the back and removed in toto for microscopic study. The results were practically identical to those of the previous biopsy, and the small bulla was seen to be filled with a closely packed accumulation of lymphoid cells. A culture from a bulla revealed growths of Staphylococcus albus and Streptococcus haemolyticus.

Treatment and Course.—The patient was treated symptomatically with lubricating jelly, dusting powders, bran baths, calcium given intravenously and soothing and antiseptic ointments. On January 21, six days after admission, he was given an erythema skin dose of unfiltered roentgen radiation to the flexor surface of the right arm and one-half that amount to the corresponding area of the left arm. These areas, however, never showed any improvement. Approximately one week after admission the patient began to show an increasing number of hemorrhagic areas. These were particularly noticeable on the legs, where they assumed a serpiginous distribution and appeared to be within the skin but never progressed to the stage of free bleeding (fig. 3). Up to this time the patient had been allowed up, but when he was confined to his bed some improvement occurred in this particular phase of his manifestations. The general course, however, was downhill, being marked by the appearance of new crops of bullae which would rupture, leave raw, oozing surfaces and increase the patient's discomfort. The generalized glandular enlargement became more marked, the inguinal and femoral groups of glands being particularly involved. Total white cell counts and differential cell counts were made every other day but failed to show any marked variation in the blood picture. The total white cell count varied between 32,600 and 48,300, the total lymphocytic element representing from 78.5 to 92.5 per cent of this count (table). On February 3, two and one-half weeks after admission, there developed in the left submaxillary triangle a painful mass which was also palpable through the floor of the mouth. There was an associated fever, the temperature ranging between 100.6 and 103 F. The mass continued to enlarge until February 7, when, as respiration was somewhat embarrassed, the area was incised and drained. A small amount of watery pus was obtained, and the patient was slightly relieved. The operation was repeated on the following day, but the patient was still unable to swallow. He was sustained on infusions until February 9, twenty-five days after admission, when the temperature again rose to 103 F. and he died. The diagnosis of the immediate cause of death was cervical cellulitis, probably associated with septicemia (fig. 6).

Summary of Autopsy Report.—Gross Observations: The patient was a well developed and well nourished Negro of advanced age whose body, including the hands and the face, was completely covered by innumerable lesions of the skin. These consisted of bullae varying from 0.5 to 3 cm. in diameter filled with clear fluid, papules covered with thick granular friable yellow crusts and large areas of superficial ulceration.

The left side of the neck was much swollen and edematous. Marked dental caries and acute stomatitis were present.

The cervical lymph glands could not be felt owing to swelling of the neck, but the axillary, epitrochlear and inguinal glands were easily palpable and moderately enlarged though rather soft.

The peritoneal and pleural cavities were unaltered except for early fibrinous pleurisy on the left and a few old pleural adhesions on the right.

The liver weighed 2,170 Gm.; it was moderately enlarged and engorged with blood.

Complete Tabulation of Results of All Studies of the Blood Made During Hospitalization

Date	White Cells per Cu. Mm.	Polymorphonuclears					Lymphocytes			Monocytes		Eosinophils	Basophils	Polymorphonuclears per Cu. Mm.	Lymphocytes per Cu. Mm.	Red Cells, Millions per Cu. Mm.	Hemoglobin, Gm. per 100 Cc.	Normoblasts	Platelets
		Myeloblasts	Myelocytes	Juvenile Forms	Band Cells	Segmented Cells	Lymphoblasts	Large	Small	Large	Transitional Forms								
1/16/34	32,600	0	0	0.0	0.25	8.5	0.75	10.0	76.75	0.75	0.5	2.25	0.25	2,859	28,541	4.15	12.4	1	.....
1/22/34	48,300	0	0	0.0	0.0	7.0	0.00	6.0	86.5	0.5	0.0	0.00	0.00	3,381	44.677	....	....	2	318,000
1/24/34	42,800	0	0	0.5	1.5	15.0	0.00	5.0	73.5	1.0	0.5	3.50	0.00	7,276	33,598	....	....	0	.....
1/26/34	38,200	0	0	0.0	0.5	11.0	0.00	12.0	72.5	0.0	0.0	4.00	0.00	4,393	32,279	....	....	0	248,450
1/28/34	40,000	0	0	0.0	0.5	11.0	0.00	8.0	77.5	0.0	0.0	3.50	0.50	4,600	34,200	....	....	0	.....
1/30/34	42,000	0	0	0.5	0.0	11.5	0.00	11.5	70.0	0.5	0.5	3.00	0.00	5,040	34,230	....	....	1	.....
2/ 1/34	40,600	0	0	0.0	0.0	19.0	0.00	3.0	78.0	0.0	0.5	2.00	0.00	7,714	32,880	....	....	2	.....
2/ 3/34	46,000	0	0	0.0	0.0	18.0	0.00	6.0	73.0	0.0	0.0	3.00	0.00	8,280	36,340	....	....	0	.....
2/ 5/34	43,500	0	0	0.0	0.0	9.5	0.00	8.5	79.0	1.0	0.0	2.00	0.00	4,133	38,263	....	....	0	.....
2/ 7/34	32,600	0	0	0.0	0.0	11.0	0.00	12.0	73.0	1.0	0.0	3.00	0.00	3,586	27,710	3.56	9.7	1	.....

The spleen weighed 290 Gm. and was moderately enlarged. The capsule showed much hyaline thickening. The organ was somewhat firmer than normal. The malpighian bodies were unusually small but were plainly visible as white points on a homogeneous dark red background.

The mesenteric lymph glands were unaltered in size, shape and consistency.

The bone marrow of the vertebrae was red and normal in general appearance. That taken from the shaft of the femur was composed of soft, bright yellow fat.

The organs of the neck showed marked purulent cellulitis which was most severe in connective tissues about the esophagus, the trachea and the thyroid. The tonsils were small, firm and deeply scarred.

The gastro-intestinal tract was unaltered, as examined grossly, except for several small, localized areas of diphtheritic inflammation of the esophageal mucosa. The lymphoid tissue of the intestine was normal in appearance.

Fig. 6.—Postmortem photograph, showing encrustation, many ruptured bullae and vesicles and marked secondary infection.

The lungs showed no noteworthy changes.

The tracheobronchial lymph glands were normal in size and general appearance.

In the aorta moderate arteriosclerosis was observed.

The kidneys showed a moderate amount of scarring.

In the prostate there was moderate adenofibromatous hypertrophy without obstruction.

The bladder, the seminal vesicles, the testes, the brain, the spinal cord, the adrenal glands, the hypophysis, the thyroid, the parathyroid glands and the pancreas showed no noteworthy gross changes.

Summary of Microscopic Examination: In the skin the principal change seemed to have taken place in the dermis. Its superficial portion, in contact with the epidermis, was considerably thickened and formed a distinct layer of loose, edematous connective tissue in which were many fibroblasts, small blood vessels with swollen endothelium and scattered lymphocytes as well as occasional neutrophilic and eosinophilic leukocytes. Just below this layer the dermis showed intense perivascular infiltration by compact masses of lymphocytes. Scattered

throughout the deeper as well as the superficial portions of the dermis were numerous large branching cells filled with brown pigment. No change of importance related to hair follicles, sweat glands or sebaceous glands was observed.

The overlying epidermis was greatly altered. Hardly any area could be observed which did not show definite atrophy. In some areas the epidermis was a smooth thin layer of stratified epithelium, no papillae being present in the underlying dermis. In other areas thin, irregular branching strands of epidermis extended downward into the superficial layer of the thickened dermis. There was everywhere marked keratinization of the superficial layers, and frequently complete ulceration of the epidermis was noted. Areas showing these changes and having become partially healed over by a thin layer of epithelium were numerous. Large crusts of epithelial débris and bacteria were often present.

The axillary, inguinal and other superficial lymph glands showed approximately the same changes. The capsules were much thickened by fibrous tissue which was heavily infiltrated by lymphocytes grouped about blood vessels. This perivascular infiltration often extended into the surrounding fat and connective tissue, the picture being in contrast with that disclosed by the biopsy three weeks before. The peripheral sinus was preserved, though it was often dilated by large mononuclear cells, lymphocytes and pink-staining fluid. Only rarely was the sinus obliterated. Outstanding changes in the glands consisted of absence of germinal centers and rather marked increase of reticulum. The glands were filled by lymphocytes, numerous larger mononuclear cells, a few large irregular, pale reticulum cells and scattered eosinophils. Numerous small vessels were present throughout the cortex. The smaller lymph channels were distended by lymphocytes forming a homogeneous mass with the intervening lymph cords. About the larger vessels were infiltrations of lymphocytes. The larger lymph sinuses were patent and distended by phagocytes filled with iron pigment. The mesenteric, retroperitoneal and all other deeper lymph glands were normal.

Examination of the spleen showed that the capsule and trabeculae were much thickened and contained considerable iron pigment. The malpighian bodies, though small, were all present and were composed of closely packed normal-looking small lymphocytes. There was marked fibrosis of the pulp, in which, however, there remained a large number of lymphocytes, larger mononuclear cells, reticulum cells and a sprinkling of eosinophils. Many inconspicuous, partly collapsed venules were seen.

The bone marrow showed the following picture: In red marrow taken from the vertebrae and ribs there was active formation of both granulocytes and red blood cells. The number of megakaryocytes was about normal. Marrow from the shaft of the femur was fatty. On microscopic study only a few spicules of cancellous bone embedded in fat cells were observed. No active blood formation was present.

Examination of the thyroid and parathyroid glands showed that there was marked acute cellulitis in the tissues surrounding the thyroid but no changes in the thyroid or parathyroid glands.

The lungs showed emphysema.

In the liver there was central atrophy of lobules, and slight increase in lymphocytes of periportal spaces was noted.

The kidneys showed slight scarring; no lymphocytic infiltrations were present.

The prostate showed moderate fibro-adenomatous hypertrophy.

The heart, the stomach, the intestine, the pancreas, the adrenal glands, the bladder, the seminal vesicles, the testes, the brain and the spinal cord showed no changes worthy of note.

Cultures of material from the heart, from the spleen and from a lymph node showed nonhemolytic streptococci.

Comment.—The following comment was made by Dr. J. R. Cash, professor of pathology:

Though the chronic course of the disease, some aspects of the blood picture and the cutaneous lesions suggest the diagnosis of chronic lymphoid leukemia, this opinion, in view of the autopsy observations, seems questionable. Against the diagnosis of lymphoid leukemia stand the following facts: (1) The absence of anemia as well as of any young cells in the peripheral blood; (2) the absence of other infiltrations of lymphoid cells anywhere else in the body; (3) the lack of decided tendency toward hyperplasia in the deeper lymphoid apparatus, and (4) the absence of hyperplasia of the bone marrow.

Dr. H. E. Jordan, Professor of Histology, summarized the observations as follows: 1. The skin showed well demarcated infiltration with lymphocytes and a fair number of mitoses. 2. The superficial lymph nodes presented the picture of lymphatic leukemia. 3. Few areas of lymphoid cell nests were present in the vertebral marrow (this is often seen in normal specimens). 4. There was no evidence of leukemia in the deeper lymph nodes, in the spleen, in the marrow from the femurs and ribs, in the liver or in other viscera.

COMMENT

The disorder in this case is actually undiagnosed, although the studies were fairly complete. Had there been no postmortem examination, this patient's condition undoubtedly would have been diagnosed as (1) pemphigus foliaceus or (2) chronic lymphatic leukemia with cutaneous infiltration. The pemphigoid or bullous types of eruptions have been reported to occur in cases of lymphoblastoma by Sachs,[4] who also cited five other cases from the literature, and by Rosenthal,[5] Miller,[1g] Keim,[1e] Goeckerman and Montgomery [1a] and Pollitzer.[6] The absence on postmortem examination of any microscopic or gross evidence of leukemia other than that of the skin and superficial lymph glands is unique. There are no features sufficiently well marked to lead one to consider any of the other diseases commonly grouped under the term lymphoblastoma.

What then caused the cutaneous changes and the abnormal changes in the blood? The possibility suggested is that the original disease with its pruritus may have led to the cellular deposition and proliferation seen in the section from the skin. This conception has been men-

4. Sachs, O.: Pemphigoid Skin Eruptions in Lymphatic Leukemia, Wien. klin. Wchnschr. **34**:317, 1921.

5. Rosenthal, S. K.: Condition Resembling Pemphigus Occurring in a Case of Lymphatic Leukemia, Arch. f. Dermat. u. Syph. **150**:304, 1926.

6. Pollitzer, S., in discussion on Arndt, G.: Diseases and New Growths of Lymphatic Origin, J. A. M. A. **63**:1274 (Oct. 10) 1914.

tioned before by Engman [7] and Miller.[1g] The time element and typical history would suggest that pemphigus foliaceus was the primary disorder.

Can the blood picture be explained on a secondary basis? Was it a true leukemia or a leukemoid blood reaction occurring with, or following, some other condition? The results of complete postmortem examination apparently rule out the diagnosis of a primary blood dyscrasia, although the hemogram (table), showing constant leukocytosis and relative and absolute increase in the number of small lymphocytes, scarcely allows another diagnosis. It would, of course, be of great interest to know the time of onset of the abnormal blood picture, though freedom of visceral infiltration appears to indicate that it was of short duration. The leukocytosis, the number of leukocytes averaging 43,660 over a period of three weeks with from 92.5 to 78.5 per cent lymphocytes, substantiated by both vital and peroxidase stains was of the type seen in lymphatic leukemia. The absence of anemia was, of course, not typical of leukemia, but the slight eosinophilia could be explained on the basis of the chronic cutaneous disease.

The literature shows some support for the theory that such a blood reaction may be secondary to some other condition. Cleveland [8] has reported a case in which lupus erythematosus was followed by a lymphatic leukemic blood picture, and hemograms indicative of myelogenous leukemia coincident with or following abnormal cutaneous conditions have been seen in cases of dermatitis herpetiformis (Cleveland [8]), lupus erythematosus (Schmidt [9]) and after treatment with mercury ointment (Downey et al.[10]). Keim [1e] has reported two cases in which on the basis of clinical obserations and biopsy the disorder was diagnosed as granuloma fungoides, but in which a blood picture of true leukemia was present. Of course, leukemoid blood pictures, both lymphatic and myelogenous, have been seen in various clinical conditions. Krumbhaar,[11] Pinkerton,[12] Poynton and Moncrieff,[13] Thomp-

7. Engman, M. F., in discussion on Keim.[1d]

8. Cleveland, D. E. H.: Leukemia as a Sequel in Skin Diseases, Arch. Dermat. & Syph. **20**:320 (Sept.) 1929.

9. Schmidt, F. R.: Lupus Erythematosus with Leukemic Observations, Arch. Dermat. & Syph. **20**:217 (Aug.) 1929.

10. Downey, H.; Kajor, S. G., and Noble, F. F.: Leukemoid Blood Pictures of the Myeloid Type, Folia haemat. **41**:493, 1930.

11. Krumbhaar, E. B.: Leukemoid Blood Pictures in Various Clinical Conditions, Am. J. M. Sc. **172**:519, 1926.

12. Pinkerton, H.: Aleukemic Leukemia and Atypical Leukemoid Conditions, Arch. Path. **7**:567 (April) 1929.

13. Poynton, F. J., and Moncrieff, A.: Subcutaneous Nodules in the Scalp, Lancet **2**:812, 1929.

son,[14] Easton,[15] and Cabot [16] have reported many cases in which that association occurred. But in these cases, in which the disorder was usually coincident with infections, the lymphocytosis was neither so well defined nor so constant as the case reported here. Desjardins [17] has recently expressed the opinion that chronic infection is the cause of lymphoblastoma.

It seems that the clinical diagnosis of pemphigus foliaceus based on the cutaneous picture is most tenable and that the microscopic changes in the skin, abnormalities in the superficial lymph glands and abnormalities in the blood were secondary and localized to those tissues, a condition which has probably not previously been described.

Does this case seem to confirm the contention that leukemia is due to an infection or toxemia, the long-standing, widespread cutaneous condition acting as source of the noxa? Or was the long-standing chronic irritation the stimulus for the neoplastic change in the superficial lymphoid structures, which would have become generalized had the patient not died from the cellulitis of the neck?

Some patients with true leukemia later show cutaneous involvement. Certain generalized cutaneous conditions, for example some forms of exfoliative dermatitis, have been considered to be secondary to leukemia. Some observers have claimed that leukemia, often in the aleukemic stage, was responsible for some of these disorders and advised that the blood picture be followed. Is it possible that in some instances the cause and effect have been reversed? The details here reported suggest that long-standing, continued widespread cutaneous abnormality is the etiologic factor in this unusual disorder associated with a blood picture characteristic of lymphatic leukemia.

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14. Thompson, W. P.: Abnormalities in the White Blood Cell Response, Am. J. M. Sc. **182**:334, 1931.

15. Easton, J. H.: Acute Myelogenous Leukemia, Lancet **2**:219, 1930.

16. Cabot, R. C.: The Lymphocytosis of Infection, Am. J. M. Sc. **145**:335, 1913.

17. Desjardins, A. U.: The Etiology of Lymphoblastoma, J. A. M. A. **103**: 1033 (Oct. 6) 1934.

EFFECT OF SALTS ON CERTAIN PATHOGENIC FUNGI

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In the present work we have studied the inhibiting effect of the anions of the Hofmeister series [1] on pathogenic fungi. The series are arranged as follows: citrate, tartrate, sulfate, acetate, chloride, nitrate, chlorate, iodide and thiocyanate, the order being determined according to ability to salt out a solution of albumin. The cation employed was sodium.

Only a few studies [2] were found in the literature relative to effects of salts on fungi, and these dealt with saprophytes. In 1922 Falk [3] made an exhaustive review of the biologic effects of salts on organisms, including bacteria. Recently Winslow [4] reviewed work relative to the inhibitory effects of salts on bacteria, paying, however, less attention to anions than to cations. In a previous paper, one of us [5] incorporated sodium chloride and potassium iodide of different concentrations in solid mediums but found that the agar with the potassium iodide would not solidify at the higher concentrations at which organisms grew. In this study we have therefore substituted liquid medium.

The importance of a study of anion effect is at once evident. 1. From the point of view of treatment of fungous disease, inhibition of the causative organism should prove of value in deciding on the efficacy of treatment. 2. Since there is concentration of ions in inflammatory lesions due to fungi, concentration of a highly inhibitory anion should help limit the infection. We refer especially to the sulfate, which is

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From the Department of Biology and Public Health and the Homberg Memorial Infirmary, Massachusetts Institute of Technology.

1. Hofmeister, F.: Arch. f. exper. Path. u. Pharmakol. **24**:247, 1887-1888; **25**:1, 1888.

2. Atkins, W. R. G.: Some Recent Advances in Plant Physiology, New York, The Macmillan Company, 1916, p. 328. Estor, W.: Centralbl. f. Bakt. **72**:411, 1927.

3. Falk, I. S.: Abstr. Bact. **7**:33-50 and 87-105, 1923.

4. Winslow, C.-E. A.: Quart. Rev. Biol. **9**:259, 1934.

5. Williams, J. W.: Physical Chemistry and the Growth of Certain Pathologic Fungi, to be published.

highly inhibitory. Since Shade [6] has shown that the atmospheric pressure in an area of inflammation may reach 12 atmospheres, and since 5 atmospheres of sulfate, according to our results, would inhibit, it seems logical that the accumulation of inhibitory salts may prove of importance in limiting infection. In other words, the by-products of bodily reaction and the culture medium might be in the form, at least in part, of inhibitory ions.

Maximum Concentration at Which Growth Appeared (Mols per Liter)

Organism	Citrate	Tartrate	Sulfate	Acetate	Chloride	Nitrate	Chlorate	Iodide	Thiocyanate
Achorion Schoenleinii	0.5	0.5	0.1	0.1	1.0	0.5	0.5	0.5	0.3
Acladium Castellani	0.3	0.5	0.1	0.1	1.0	0.5	1.0	0.5	0.5
Endodermophyton tropicale	0.3	0.5	0.1	...	0.5	0.3	0.5	0.5	0.3
Endomyces capsulatus	0.3	0.5	0.1	0.1	1.0	0.5	0.5	0.3	0.3
Endomyces dermatitidis	0.3	0.5	0.1	0.1	1.0	0.5	0.5	0.3	0.5
Epidermophyton inguinale	0.3	0.1	0.1	...	0.3	0.3	1.0	0.3	0.3
Epidermophyton rubrum	0.3	0.5	0.1	...	1.0	0.5	0.5	0.5	0.3
Glenospora Gammeli	0.3	0.5	0.1	...	1.0	0.5	0.5	0.3	0.3
Geotrichum Bachmann	0.5	1.0	0.3	0.5	1.0	1.0	0.5	1.0	0.5
Indiella americana	0.3	0.5	0.1	0.1	0.5	0.3	0.3	0.3	0.1
Lichtheimia sp	1.0	1.0	0.1	...	1.0	1.0	1.0	1.0	0.5
Microsporon felineum	0.3	0.5	0.1	0.1	0.5	0.5	1.0	0.3	0.5
Microsporon gypseum	0.5	1.0	0.3	...	1.0	0.5	1.0	0.5	0.5
Monosporium apiospermum	0.5	0.5	0.3	0.1	0.5	0.5	0.5	0.5	0.3
Oospora humi	0.5	1.0	0.3	0.3	1.0	1.0	1.0	1.0	1.0
Sporotrichum Schenkii	0.5	0.5	0.5	0.1	0.5	0.5	1.0	0.5	0.3
Trichophyton balcaneum	0.3	0.3	0.1	0.1	0.3	0.3	0.3	0.5	0.1
Trichophyton crateriforme	0.3	0.5	0.1	...	1.0	0.5	0.5	0.5	0.3
Trichophyton decalvans	...	0.5	0.1	...	0.5	0.3	0.3	0.3	...
Trichophyton gypseum	0.3	0.5	0.1	...	1.0	0.5	0.5	0.5	0.3
Trichophyton gypseum-asteroides	0.5	1.0	0.1	...	0.5	0.5	0.5	0.5	0.3
Trichophyton gypseum-lacticolor	0.5	1.0	0.1	...	1.0	1.0	0.5	0.5	0.3
Trichophyton interdigitale	0.5	0.5	0.3	0.1	1.0	0.5	0.5	0.3	0.3
Trichophyton japonicum	0.3	0.1	0.1	...	0.1	0.1	0.1	0.1	0.1
Trichophyton louisianicum	0.3	0.5	0.1	...	1.0	0.5	0.5	0.5	0.3
Trichophyton niveum	0.5	1.0	0.1	...	1.0	0.5	0.5	0.5	0.5
Trichophyton purpureum	0.3	0.5	0.1	...	0.5	0.3	0.5	0.5	0.3
Trichophyton sulfureum	0.3	0.5	0.1	0.1	1.0	0.3	0.5	0.3	0.1
Willia anomala	1.0	2.0	0.3	0.3	2.0	3.0	2.0	1.0	0.5

METHODS

The medium used in these observations was our routine W broth (4 per cent peptone and 1 per cent dextrose at p_H 5.6). The ingredients of the medium were added by weight since a variable amount of swelling was caused. The growths were incubated at room temperature over a period of forty days.

The saprophyte Lichtheimia sp. and the following pathogenic fungi were studied: Achorion Schoenleinii, Acladium Castellani, Endodermophyton tropicale, Endomyces capsulatus, Endomyces dermatitidis, Epidermophyton inguinale, Epidermophyton rubrum, Glenospora Gammeli, Geotrichum Bachmann, Indiella americana, Microsporon felineum, Microsporon gypseum, Monosporium apiospermum, Oospora humi, Sporotrichum Schenkii, Trichophyton balcaneum, Trichophyton crateriforme, Trichophyton decalvans, Trichophyton gypseum, Trichophyton gypseum-asteroides,

6. Shade, H., and Menschel, H.: Ztschr. f. klin. Med. **96**:279, 1923; Münchn. med. Wchnschr. **71**:1, 1924.

Trichophyton gypseum-lacticolor, Trichophyton interdigitale, Trichophyton japonicum, Trichophyton louisianicum, Trichophyton niveum, Trichophyton purpureum, Trichophyton sulfureum and Willia anomala.

The following graphs were utilized in explaining our data: representation of p_H adjustment, of surface tension, of salt effect index and of salt susceptibility index. The salt effect index is the sum of the maximum molarities of each salt at which growth took place divided by the number of organisms. The salt sus-

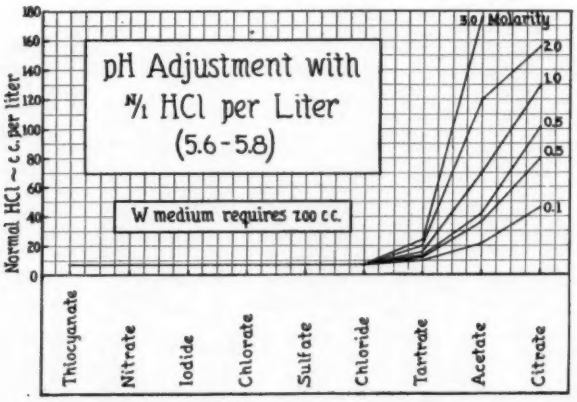

Chart 1.—Graphic representation of p_H adjustment with normal hydrochloric acid per liter (from 5.6 to 5.8).

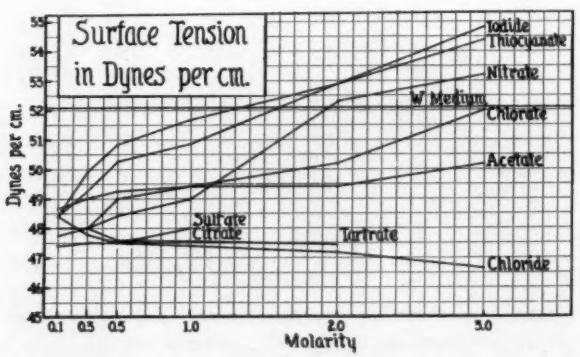

Chart 2.—Graphic representation of surface tension in dynes per centimeter.

ceptibility index is the sum of the maximum molarities of the salts for each organism at which growth took place divided by the number of salts.

The following chemicals were used, in chemically pure form: sodium citrate, sodium tartrate, sodium sulfate, sodium acetate, sodium chloride, sodium nitrate, sodium chlorate, sodium iodide, sodium thiocyanate, peptone and dextrose. The water of crystallization of the citrate and tartrate was corrected for. The remainder of the salts were anhydrous. In concentrations greater than 1 mol with sodium citrate and sodium sulfate and greater than 2 mols with sodium tartrate, surface tensions were not recorded because of solid matter in the mediums.

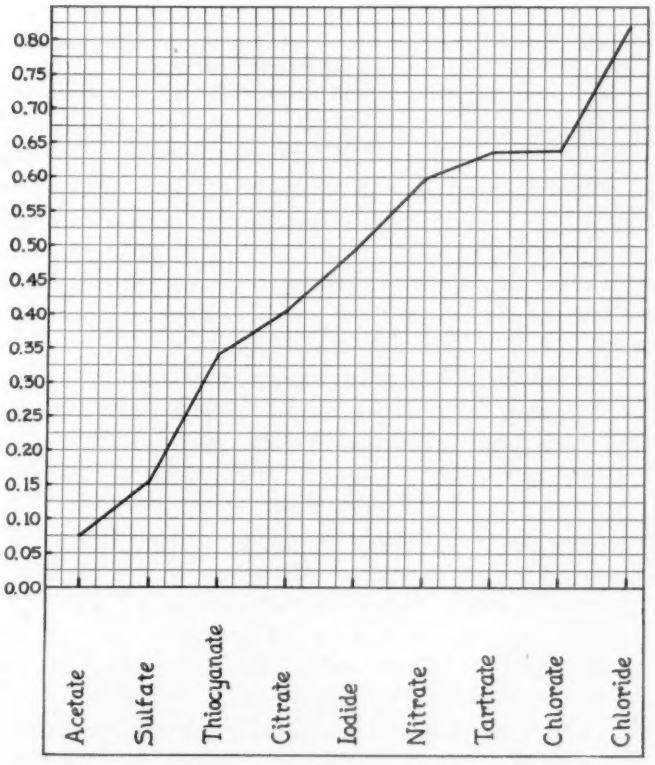

Chart 3.—Graphic representation of salt effect index.

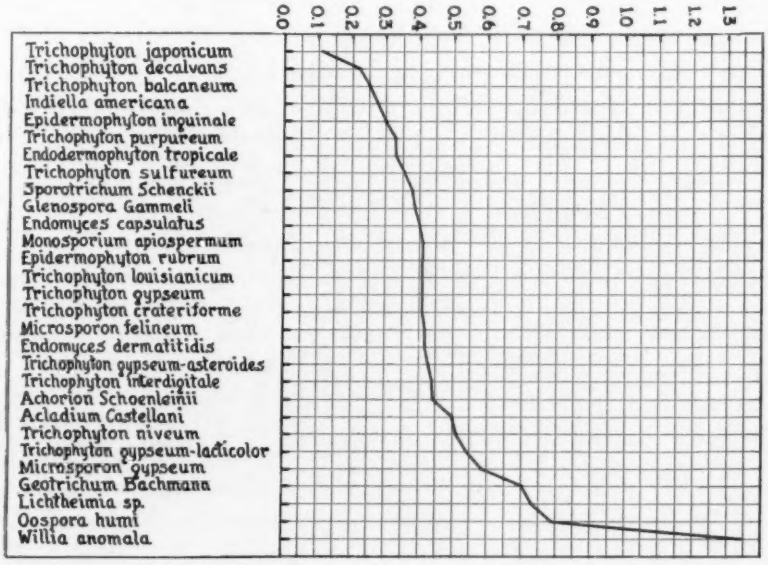

Chart 4.—Graphic representation of salt susceptibility index.

The osmotic pressures of the mediums per mol of salt plus the other ingredients at 20 C. for the salt mediums were as follows: sodium citrate, 102.6 atmospheres; sodium tartrate and sodium sulfate, 78.6 atmospheres; sodium acetate, sodium chloride, sodium nitrate, sodium chlorate, sodium iodide and sodium thiocyanate, 54.6 atmospheres.

COMMENT

What causes the variation in the effect of anions is problematic. There is no evidence that osmotic pressure or surface tension alone plays a part, although surface tension can apparently modify colony morphology.[5] Apparently there are protoplasm and a membrane effect in the instance of the acetate and sulfate.[7] Osterhout[8] and Höber[9] have recently reviewed in detail what is known on the effects of salts on large cells, but their data do not explain our results. One of us[10] has found that with the organisms studied p_H variation is apparently not of great importance. It is also evident that results do not follow the Hofmeister series.

CONCLUSIONS

The inhibitory effect of anions (using the sodium cation) on a representative group of pathogenic fungi does not follow the Hofmeister series.

The acetate and the sulfate anion with the sodium cation are most inhibitory, and the chloride anion with the sodium cation is least inhibitory.

In themselves, p_H, surface tension and osmotic pressure do not explain the inhibitory effect of the anions studied on certain pathogenic fungi.

One, a yeastlike organism, Willia anomala, showed resistance to the inhibitory effects of salt out of proportion to the other fungi.

Because of the consistency of inhibitory effects for the various organisms, it seems logical that like factors are responsible for the inhibition and that the degree of inhibition is dependent on the organism.

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7. Irwin, M.: J. Gen. Physiol. **11**:111, 1927. Netter, H., and Brooks, S. C.: Arch. f. d. ges. Physiol. **220**:107, 1928; Protoplasma **8**:389, 1929.

8. Osterhout, W. J. V.: Ergebn. d. Physiol. **35**:967, 1935.

9. Höber, R.: Physiol. Rev. **16**:52, 1936.

10. Williams, J. W.: Proc. Soc. Exper. Biol. & Med. **32**:918, 1935; I. Effect of Variation of Ratios of Dextrose to Peptone on Colonies of Certain Pathogenic Fungi, Arch. Dermat. & Syph. **32**:893 (Dec.) 1935.

KELOIDS AND SEXUAL SELECTION

A STUDY IN THE RACIAL DISTRIBUTION OF DISEASE

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The genesis of racial predisposition to disease is a subject infrequently discussed or all too often dismissed with the statement, in most cases quite obvious, that the tendency is hereditary. In great part, this is probably due to the impossibility, at present, of putting hypotheses on this subject to experimental or statistical proof and to the reluctance on the part of modern scientific workers to recognize the importance of such tentative opinions. But, since in reality hypotheses play so important a rôle in scientific medicine,[1] it is without apology to experimental science that I offer this possible explanation for the marked predisposition of the Negro to keloid formation. In this hypothesis the principle of sexual selection makes, so far as I know, its first appearance in pathology.

Keloid occurs as an uncommon sequela to injury to the skin. Whether the division into "true" and "false," or traumatic and nontraumatic, keloids is justified is doubtful. The injury may be slight or easily forgotten.[2] Keloid may follow an eruption on the skin, such as vaccinia,[2] acne, smallpox[3] or herpes zoster.[4] In morphine addicts,[5] the scars may be found at the sites of hypodermic injections. A burn, or even the irritation of a porous plaster,[2] may be followed by an extensive overgrowth.

From the Pathology Laboratories of the St. Francis Hospital and of the Methodist Hospital of Central Illinois.

1. A modern text on "logic" offers an effective antidote to those who do not realize the prime importance of hypothesis in scientific progress and who fondly believe that the experimental method is uncontaminated by recourse to what is sometimes contemptuously referred to as philosophizing. M. R. Cohen and E. Nagel (An Introduction to Logic and Scientific Method, New York, Harcourt, Brace and Company, Inc., 1934, chap. 10) have given a readable discussion of this problem.

2. Matas, Rudolph: The Surgical Peculiarities of the Negro, Tr. Am. Surg. A. **14**:483, 1896. The discussion of keloid begins on page 558.

3. Powell, A.: Keloid Nature of the "Fibrous" Tumours of the Auricle, Indian M. Gaz. **34**:280, 1899.

4. Personal observation.

5. Herzog, M.: Extensive Multiple Keloids, J. A. M. A. **48**:1844 (June 1) 1907. Powell.[3]

That keloids are more common among Negroes than among white persons is commonplace knowledge.[6] Illustrations of the condition in textbooks are almost invariably taken from Negro subjects. Exactly how much more common it is difficult to say, for the milder forms and those which occur in unexposed sites are not often presented for examination and treatment. Fox[7] found 3 cases in 8,382 white patients and 76 in 11,486 Negroes, a ratio of Negroes to white persons of about 19:1. Hazen[8] saw 1 keloid in 2,000 white patients with cutaneous disease and 14 in an equal number of Negroes. Matas[2] estimated the proportion as 9:1. Hindus[9] and Malayans[10] also have keloids more commonly than white-skinned people.

It is natural, since in some persons slight injuries of the skin lead to pronounced keloid formation while in others extensive injuries heal with contracted, atrophic scars, that some special predisposition to such tissue overgrowth should be assumed.[11] Coupled with instances of familial occurrence,[12] the hereditary character of this predisposition is strongly suggested. Because of the fibroplastic character of keloids, this predisposition has been identified with the tendency to the development of other fibrous overgrowths.[13] Balloch[14] considered the three diseases keloid, elephantiasis Arabum, and myoma of the uterus ". . . by common consent . . . peculiar to the dark-skinned races," and enunciated as a pathologic law "that there is some peculiarity in the dark-skinned races rendering them liable to growths of a fibrous nature in a degree greatly exceeding that observed in the white race." To these three conditions Rosser[13] added fibrous overgrowths with stricture of the rectum, calling the whole phenomenon a "fibroplastic diathesis."

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6. Brenizer, A. G.: Keloid Formation in the Negro, Ann. Surg. **61**:83, 1915.

7. Fox, Howard: Observations on Skin Diseases in the Negro, J. Cutan. Dis. **26**:67 and 109, 1908.

8. Hazen, H. H.: Personal Observations upon Skin Diseases in the American Negro, J. Cutan. Dis. **32**:705, 1914.

9. Spitzer, R.: Geographische Verteilung der Hautkrankheiten, in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1928, vol. 14, pt. 2, p. 285. Powell.[3]

10. (*a*) Wooley, P. G.: Notes on Some Skin Diseases Encountered in Siam in the Years 1906-1907, Am. J. Dermat. & Genito-Urin. Dis. **11**:481, 1907. (*b*) Steiner, L.: Ueber Keloide der Ohrläppchen bei den Javanen, Arch. f. Schiffs- u. Tropen-Hyg. **15**:13, 1911. (*c*) Linton, R.: Ethnology of Polynesia and Micronesia, Chicago, Field Museum of Natural History, 1926, p. 59.

11. Brenizer.[6] Herzog.[5]

12. (*a*) Ormsby, O.: J. Cutan. Dis. **23**:365, 1905. (*b*) Justus, Jakob: Beobachtungen und Experimente zur Aetiologie des Keloides, Arch. f. Dermat. u. Syph. **127**:274, 1919.

13. Rosser, Curtice: Proctologic Peculiarities of the Negro: The Fibroplastic Diathesis, Am. J. Surg. **37**:265, 1923.

14. Balloch, E. A.: The Relative Frequency of the Fibroid Processes in the Dark-Skinned Races, M. News **64**:29, 1894.

The ultimate cause of this diathesis must be found eventually in peculiar biologic characteristics of the connective tissue of affected persons, of which nothing is known as yet. Hyperthyroidism,[12b] chronic infections about hair follicles and sebaceous glands [15] and endocrine disturbances [16] have been suggested as predisposing factors in the genesis of keloids, but even if one of these were truly responsible it would not alter the necessity for an explanation of the racial distribution of cases.

While the chemical and physical processes which make for the ready appearance of keloids are unknown, an explanation for the greater frequency among Negroes can be attempted. The mechanism for racial susceptibility or racial immunity to disease varies, and great care must be exercised in order to differentiate hereditary racial differences from those due only to customs or geographic distribution. An example of the influence of custom is the immunity of Jews to carcinoma of the penis. This immunity is shared by Mohammedans and circumcised Christians and is dependent on the custom of circumcision and not on hereditary racial characteristics. The immunity of Eskimos to common colds is geographic and is lost as soon as the Eskimo comes south, where colds are common.

Truly racial diseases or susceptibilities [17] depend on the transmission, in the chromosomes of the germ cells, of the characters which are responsible for or strongly predispose to the disease. These characteristics, like any other which is responsible for the ultimate form or function of a part or the whole of the organism, have in the course of time been modified, first, by the spontaneous appearance of variations from the usual, so-called mutations, and second, by some form of weeding-out process such as natural selection or sexual selection. The hereditary malformations and degenerative diseases probably arose as mutations and have persisted because of the recessiveness of the character or because of sex linkage, both of which cause the transmission of the characteristics through individuals who themselves do not suffer from the disease.[18] With such characteristics the process of natural selection, which might in time eliminate the disease, is interfered with. Natural selection, on the other hand, plays an obvious and

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15. Krzysztalowicz, F.: Ein Beitrag zur Kenntnis der Pathogenese der Keloide, Monatsh. f. prakt. Dermat. **49**:381, 1909.

16. Geschickter, C. F., and Lewis, Dean: Tumors of Connective Tissue, Am. J. Cancer **25**:630, 1935.

17. The meaning of this phrase is of course circumscribed by the meaning of the word "race," and there is no consensus as to this, unfortunately not always for reasons having to do with scientific data. For the present purpose a race may be rather loosely defined as a group of people the members of which, through a long period of interbreeding, have become genetically similar.

18. Macklin, M. R.: The Rôle of Heredity in Disease, Medicine **14**:1, 1935.

important part in the production of relative racial immunity to infectious diseases.

By sexual selection Darwin [19] meant the development of characteristics which give an advantage in the acquisition of a mate to the subject possessing them over those not similarly endowed. In having this advantage, which in the light of post-Darwinian information one must assume was first acquired by purely accidental variations, the favored individual transmitted the character to his offspring, who then were not only similarly favored but eventually also more numerous than their competitors for mates. Thus in time these characters became fixed for the race or even the species. Among many examples given by Darwin may be mentioned the coloration and song of birds, the horns of certain male mammals and the distribution of hair in the human male and female. These secondary sexual characters often depend on the purely esthetic appeal which they elicit in the desired mate.

It is obvious that the abnormalities or diseases which might develop by the process of sexual selection would probably be relatively harmless ones. Such diseases are few. Steatopygy is probably one such abnormality. In this connection it may be argued that the choice of women with overdeveloped buttocks by the men of certain African tribes was dependent on the frequency of the condition among their women, rather than the other way about. This may well have been the case at first. But once the esthetic interest in steatopygy was developed, women otherwise constructed were gradually eliminated, and the degree of the peculiar development increased by gradual sexual selection.

CICATRIZATION

Matas [2] called attention to the fact that "in Africa the negroes utilize this tendency to hypertrophic cicatrization for purposes of ornamentation." The production of these ornaments, called cicatrization or scarification, is widely practiced in Africa, Malasia, Australia and other regions inhabited by dark-skinned people. The motives behind it are identical with those for tattooing [20] and probably for the painting of the body, as among the American Indians. Grosse [21] has pointed out that "scarification has found practice only among dark-skinned peoples,

19. Darwin, Charles: The Descent of Man and Selection in Relation to Sex, New York, D. Appleton & Co., 1871, chap. 8.

20. Reference here is of course to the tattooing of primitive peoples. It is possible that the motives for modern tattooing may not be very different, although clothed in a mass of semi-intellectual rationalizations. Certainly much of it has a sexual basis. See Parry, A.: Tattoo, New York, Simon & Schuster, Inc., 1933.

21. Grosse, Ernst: The Beginning of Art, New York, D. Appleton & Co., 1900, p. 78.

for the scars stand out plainly only on a dark skin. For a similar reason, tattooing has spread only among the fairer peoples."

The practice of cicatrization varies considerably among different tribes, but within the individual tribe it is usually a fixed ritual, from which there is little variation. The incisions are made with a sharp instrument, today often a white man's razor. In many places irritating juices,[22] ashes,[23] ground rice-hulls [24] or other powders are rubbed into the wound to prevent too rapid healing. Often these scars are incised three or four times [24] to increase their size. Although the operation is probably painful, eye-witnesses describe no exhibitions of distress and often comment on the unconcern of the victim. Unpleasant complications are not often mentioned, although they probably occur. Herskovits,[24] who worked with a group of Africans who had been transplanted to South America but had retained most of their primitive customs, told about infection and ugly overgrowths of scar.

The favorite sites for the incisions are the abdomen, especially about the umbilicus, the thighs, the buttocks, the area between the breasts, the shoulders and the upper parts of the arms, although nearly any part of the body may be utilized. The predilection for sexually significant sites is, however, plainly noticeable. The designs utilized vary from a few parallel or radiating lines to the most elaborate geometric or flowery figures, which may cover most of the back, both hips and thighs or even the entire body.[21]

In some tribes the practice is limited to women, but in most both sexes are scarified. Nearly always the first scarifications are connected with the puberty rites. Among the girls the process begins with the first visit to the menstrual hut. In Tahiti [25] the cicatrices are called the "marks of puberty."

Besides the primitive people themselves, even the human figures created by their artists carry replicas of scarifications as raised areas. These are seen on carvings which adorn drums, stools, masks and shields and even on idols or fetich figures.[26] Among primitive peoples a replica of an object is as potent for good or harm as the object itself, so that it is not merely for the sake of faithful representation that these marks are included, but because, the marks on live human beings having

22. Marcosson, I. F.: An African Adventure, New York, Dodd, Mead & Company, Inc., 1921, p. 194.

23. Humphrey, S. K.: Loafing Through Africa, Philadelphia, Penn Publishing Company, 1929.

24. Herskovits, M. J., and Herskovits, F. S.: Rebel Destiny, New York, McGraw-Hill Book Company, 1934, pp. 223-225. An excellent description of the procedure.

25. Foster, quoted by Briffault.[27]

26. von Sydow, Eckart: Die Kunst der Naturvölker und der Vorzeit, ed. 2, Berlin, Propyläen Verlag, 1923. Examples may be found between pages 139 and 149.

profound significance, the reproductions of human beings in wood or ivory must also carry them or be without the magical protection which the marks afford.

Cicatrization is not an idle art in primitive societies, nor is it performed merely for its decorative effect. It is true that beauty is often claimed for the scars and that creative feeling undoubtedly enters into the execution of the more elaborate designs; but it is doubtful whether this alone explains the frequency of the practice. Among such people, it is their magic rather than their esthetic charms which make objects important.[27] For that matter, adornment and decoration of the body among civilized societies are probably concerned with other motives than merely the beauty they are said to display.

A relatively uncommon purpose served by cicatrization is for embossing the tribal mark on the members of the tribe. This not only serves as an identification tag but is probably more important in its magical influence in keeping the members of the tribe in indissoluble union.

The principal reason for scarification lies in its magical influence on fertility. In most primitive societies numerous progeny are, for both economic and social reasons, extremely desirable. The high infant and childhood mortality adds to the necessity for large numbers of children. Fertility rites of many varieties are known; a work such as Frazer's "Golden Bough" abounds in examples. Whatever the reason, wherever numerous progeny are desirable no man would dare risk marriage with one whose fertility was in doubt. So much is this the case that in more than one tribe a woman must first prove her fertility by having a child before she can get married.

Among the Negroes transplanted to South America, no man would marry an unscarified woman for fear she would never give him sons.[24] Among the Baholoholo and the Basonage the absence of cicatrices over the nates is thought to make sexual relations ineffectual.[28] In Polynesia a man contemplating marriage has the right to ask to see these marks.[28] The significance of cicatrizations on drums, shields or idols, which are often used in the puberal initiations or in fertility rites, becomes clear.

Only one who has no acquaintance with primitive magic, including primitive medicine, will point out the inefficacy of these practices in bringing about the desired results. The primitive man fears the consequences altogether too much ever to attempt to put magical dicta to experimental proof.[29]

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27. Briffault, R.: The Mothers, New York, The Macmillan Company, 1927, vol. 1, p. 269.

28. Biffault,[27] pp. 292-293.

29. A very beautiful story illustrating this important point was told by Carl von Hoffman ("Death of the Son of Tombyou," in "Jungle Gods," New York, Henry Holt & Company, Inc., 1929, p. 20).

SUMMARY OF THE HYPOTHESIS

The genesis of the greater frequency of keloids in dark-skinned races may then be hypothesized as follows:

A tendency to keloid formation is present in some persons, and this tendency is hereditarily transmitted. However the idea may have started, it came to be believed that there was a close magical association between the presence of cicatrizations and fertility. It may be that the first keloids were the unpremeditated results of cutaneous injuries or diseases; but later they were artificially produced by incisions into the skin. Other well established principles of the magic art caused the choice of puberty as the time for making the incisions and sexually important areas as the sites for the designs.

The persons with the best designs, designs which stood out boldly from the surrounding skin, mated early and left the largest number of progeny; these, in turn, also possessed the tendency for excessive connective tissue growth. As the proportion of these scarred persons within a tribe became larger and the magic virtue of keloids became more firmly established, the persons without the ability to produce these scars found it difficult or even impossible to acquire mates. In time the members of the tribe were practically all descendants of those who possessed the tendency to keloid formation.

This tendency to keloid formation is due to a hereditary physicochemical difference in the individual subject, which results in an overproduction of connective tissue at the sites of injuries and may be called a fibroplastic diathesis. The same person would then be subject to fibrous strictures of the rectum or to elephantiasis, and these conditions may be incidental results of the process described.[30]

The process described is in every essential that called by Darwin sexual selection. It makes its first appearance in this report as an etiologic factor in the genesis of a pathologic condition.

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30. In spite of the fact that numerous authors have grouped myomas of the uterus with these fibroplastic diseases, it is difficult to see how a tumor of muscle tissue is the result of connective tissue overgrowth.

CLINICAL SPECTROSCOPY

REPORT OF A CASE OF A PUSTULAR DERMATITIS FOLLOWING FLUORIDE MEDICATION FOR PSORIASIS

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Cases of dermatitis following medication with sodium fluoride have been observed. The primary lesion was a follicular pustule occurring by predilection where the sebaceous and sweat glands are the most abundant, namely, on the head, neck, chest and back. Objectively the eruption was indistinguishable from that following the ingestion of bromides or iodides. The first pustules began to appear a week or ten days after treatment with sodium fluoride in doses varying between 0.05 and 0.125 Gm.

The circumstance which indicated sodium fluoride as the cause was that all therapeutic attempts to affect a nickel retention in psoriasis in the light of any clinical changes were futile.[1] In spite of this, however, another suggestion for studying this dermatosis evolved from the fact that the nickel ion was utilized as a catalyst for the hydrogenation or "hardening" of various vegetable oils. As it was suspected that the degree of saturation of the tissue lipoids had been affected, which in turn would make their oxidation more difficult by leading to an accumulation, it was decided to investigate further the elemental constituents of psoriatic lesions. A biospectrometric analysis [2] showed in addition a high retention of phosphorus (fig., biospectrogram *B* [3]).

As a means of altering the phosphorus retention the pharmacologic properties of fluorine were considered. Gautier [4] expressed the opinion that fluorine is a sensitizer for phosphates and that it enables the phos-

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From the Division of Dermatology and Syphilology, Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, Columbia University, Dr. George M. MacKee, Director.

1. Gaul, L. E., and Staud, A. H.: Clinical Spectroscopy: The Quantitative Retention of Nickel in Psoriasis, Arch. Dermat. & Syph. **30**:697 (Nov.) 1934.

2. Gaul, L. E., and Staud, A. H.: Clinical Spectroscopy: Advantages and Physical Principles of the Spectroscope and the Technic for Taking the Biopsy Specimen for a Biospectrometric Analysis, Arch. Dermat. & Syph. **32**:385 (Sept.) 1935.

3. The word biospectrogram specifies the spectrogram given by a biopsy specimen under standardized physical conditions and obtained with a 3/16 inch (0.47 cm.) dermal punch.

4. Gautier, A., quoted by Michaëlis.[5]

phorus compounds to combine with the tissues, which means that the presence of fluorine is essential for the formation of calcium phosphate in the tissues. Michaëlis [5] assumed that the greater brittleness and the poorer healing tendency of the bones of older persons have some relation to the decreased fluorine content, and he stated that though the quantity of fluorine when compared with the other constituents of the bone is extremely small, it may play the part of a catalyzer. Callam [6] pointed out that fluorine can be used with good results in disorders in which there is insufficiency of the parathyroid function and that, aside from the surgical stimulation of the parathyroid glands, medication with sodium fluoride is the best treatment for scars and is helpful in cases of suppuration and inflammation of the bones.

In a group of patients receiving sodium fluoride the pharmacologic action of this drug on psoriatic lesions and on the apparently normal skin was studied. A case in which the manifestations were typical is reported.

REPORT OF CASE

A. F., a Jew aged 32, a trap-drummer, visited the clinic on Dec. 1, 1935, to obtain an ointment to ameliorate psoriasis of seventeen years' duration. He stated that a brother and a maternal aunt had psoriasis.

Past History.—The patient had scarlet fever as a child and underwent a tonsillectomy at 5 years. Poor vision necessitated the wearing of glasses at 9 years. Puberty appeared at 13 years. The most rapid growth occurred between 14 and 15 years, during which time there was an outbreak of boils involving the neck and buttocks, a total of fifteen boils developing. Shortly thereafter the first psoriatic lesion appeared. The eruption was persistent and failed to respond to any form of therapy. Seven years before the patient was seen all the teeth except the incisors and one molar became abscessed. He described the teeth as "crumbling away." For many years he had noticed that any injury to the skin would result in either a new lesion or a slowly healing wound. Sexually the patient was below normal. Rather commonly he experienced excessive irritability and a loss of temper followed by periods of depression. During the winter the eruption was aggravated sufficiently to interfere with normal motion. Dairy products, especially cheese and eggs, had always constituted the major portion of his diet.

Examination.—A complete physical examination showed nothing remarkable. The cutaneous eruption was generalized, the unusual features being that it involved the face, eyelids and their margins, ears, lips, tongue, hands, feet and nails. If this patient had not had psoriasis it would have been difficult to diagnose or determine the etiology of the condition affecting the nails. The throat was red, and there were a few white patches in the nasopharynx. Where individual lesions could be found their atypical conformation classified them as psoriasis ostreacea. They were resilient to pressure, and when the heaped-up scales were removed there appeared a gelatinous base in which the dilated capillaries were plainly visible. The inflammatory reaction was slight. Involving the elbows, sacrum, knees,

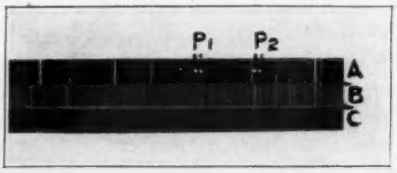
5. Michaëlis, L.: Zur Funktion des Elements Fluor im menschlichen Organismus, Klin. Wchnschr. **14**:94, 1935.

6. Callam, M.: Das Element Fluor als Spezifikum für die Nebenschilddrüse, München. med. Wchnschr. **82**:1534, 1935.

calves and dorsal aspect of the hands and feet were shroudlike lesions; it appeared as if the areas had been covered with a poorly mixed plaster. The uninvolved skin had a yellowish or light greenish color, felt cold and clammy to the touch and was covered with a dustlike scale. A neurologic examination by Dr. Kate Constable gave essentially negative results. Dr. Clyde E. McDannald found a high degree of compound, hyperopic astigmatism in the right eye and simple hypermetropia in the left. When questioned regarding symptoms of night blindness the patient gave information which was characteristic for this condition.[7]

Laboratory Data.—The routine laboratory work gave negative results. The histologic examination showed typical psoriasis. A biospectrometric analysis showed a high retention of phosphorus (fig., biospectrogram *B*).

Treatment and Progress.—The therapeutic measures were the same as those outlined previously,[8] i. e., all dairy products, eggs, artificial fats, all shortenings and oils and foods prepared with these substances were excluded. A metal-free water and a fat-free bread were also advised. The patient was instructed to eat plenty of liver and large quantities of fresh raw vegetables and fruits. He later became discouraged and did not follow these instructions. Desiccated thyroid was given in small doses. During the period from Dec. 1, 1935, to Jan. 10, 1936, the patient felt better mentally and physically; the appetite had



A, relative density of the phosphorus lines, P_1 and P_2, obtained by burning a known quantity of the element; *B,* biospectrogram showing the relative density of the phosphorus lines from a psoriatic skin before treatment; *C,* biospectrogram showing the relative density of the phosphorus lines after treatment. By using a hand lens centered over P_2, the left dot, the change in density of the phosphorus line is apparent; this proves that associated with the involution of the cutaneous lesions there had occurred a quantitative loss of phosphorus from the skin. The biospectrograms were furnished by Dr. Thomas Welsh.

become ravenous, and he had gained 7 pounds (3.2 Kg.). The psoriasis receded about 80 per cent. Where the lesions had cleared the skin took on a bright pink hue and actively secreted perspiration and sebum. At times the patient complained of a mild diffuse headache and a rather annoying pain in the lower portion of the back. In the next four weeks there was little change in the lesions involving the neck, elbows, sacrum, knees and dorsa of the hands and feet. Administration of 0.02 Gm. of sodium fluoride four times a day was started on Feb. 12, 1936. After four or five days the plaster-like lesions were edematous; their margins were elevated; there was a marked accentuation of the inflammatory reaction, and the lesions were gradually spreading. On Feb. 20, 1936, crops of small pustules

7. Wilbur, D. L., and Eusterman, G. B.: Nutritional Night Blindness, J. A. M. A. **102**:364 (Feb. 3) 1934.

8. Gaul, L. E.: Clinical Spectroscopy: Psoriasis Becoming Pustular Following the Ingestion of Mineral Oil, New York State J. Med. **36**:1219 (Sept. 1) 1936.

involving the areas generally affected by seborrhea had appeared. The skin had become pruritic, and the patient complained of loss of appetite for breakfast. The medication was discontinued.

By March 24, 1936, the old lesions had changed into a fissured, weeping and crusting dermatitis. On removing the undermined crusts one could see glistening droplets oozing from the site. It became necessary to apply wet dressings to those lesions. A patch test with a 1 per cent solution of ammonium fluoride gave negative results. The old lesions had continued to spread; new lesions were daily appearing, and by April 11, 1936, the disorder had become a tumorous, weeping and generalized crusting psoriasis. For a time it seemed as if mycosis fungoides would supervene.[9] The temperature was subnormal. Weekly examinations of the urine gave negative results.

As a last resort, the patient was advised on April 16, 1936, to eat only raw chopped beef and raw green vegetables and was given 1 quart (946 cc.) of fresh carrot juice daily. The change during the next ten days was for the better. The temperature became normal. There were occasional hot flashes followed by profuse sweating. The lesions began to lose their deep beefy red color and took on a bright superficial pink color, which gradually became brownish. The skin was hot and actively secreting. A rather severe cold associated with a profuse straw-colored discharge intervened. Since there was evidence indicating that an active factor in raw vegetables was responsible for the change, the dietary regimen was enhanced by injections of carotene. A second biospectrometric analysis showed a phosphorus line the density of which indicated less phosphorus than that found in normal skin (fig., biospectrogram *C*).[10]

COMMENT

A notation of clinical significance was observed relative to the cutaneous effects of fluoride medication. In a group of twenty patients with psoriasis receiving from 0.05 to 0.125 Gm. of fluoride daily, follicular pustules always appeared after a week or ten days. In a group of twenty patients with eczema receiving the same dosage no pustules were observed. This observation suggests that the psoriatic skin contains a substance the solubility of which is affected by the fluoride ion. Iodides produce a similar cutaneous response in patients with psoriasis.

The distribution of the element fluorine is so widespread throughout nature that a small intake of the element is practically unavoidable. A daily intake of from 0.1 to 0.15 mg. per kilogram of body weight is capable of producing at least one important manifestation of chronic poisoning, namely, mottled teeth.[11] Other sources of fluorides are

9. Wise, Fred: Mycosis Fungoides Following Typical Psoriasis, Arch. Dermat. & Syph. **8**:149 (July) 1929. Fraser, J. F.: A Case for Diagnosis, ibid. **32**:324 (Aug.) 1935.

10. An interesting point relative to removal of the specimen is that it takes the wound at the site from which the first specimen was removed from four to five weeks to heal whereas the second wound heals in one or two weeks. Frequently keloidal scars develop in the first wound.

11. DeEds, Floyd: Chronic Fluorine Intoxication, Medicine **12**:1, 1933.

inadvertent contaminations from insecticides as well as from foods and waters. This information points to another clue for investigating an unexplained pustular dermatitis, i. e., the possibility that the food or water ingested has a high fluoride content.

SUMMARY

Three members of the halogen group—fluorine, bromine and iodine—may provoke a follicular pustular dermatitis. The circumstance indicating the use of sodium fluoride is recounted. The only symptom complained of was loss of appetite in the morning. A predisposition to follicular pustules was noted in the skin of psoriatic patients after medication with the halogens, fluorine and iodine. Attention is called to the widespread sources of fluorine, and this suggests another causative agent in cases of pustular eruptions.

NOTE.—The patient whose case is reported had the longest remission of his psoriasis in the past seventeen years. A recurrence developed in December 1936. However, the lesions were nummular instead of plaquelike and generalized as they had formerly been. Poor teeth were considered an influence in this case. It is impossible to chew fresh food with a few scattered teeth or with false plates.

Studies during the past two years have brought out that dairy products and eggs especially are contraindicated in cases of psoriasis. Also to be excluded are the vegetable oils, the hydrogenated shortenings and all foods containing them. In addition, all canned, bottled, preserved, refrigerated, boxed and packaged foods should be eliminated from the diet. Present indications point to a factor in seasonal fresh raw foods which affects psoriasis favorably. Since these foods become available in the fresh state in the spring and summer, there is offered another explanation for the characteristic improvement in this dermatosis during those seasons.

STEATOCYSTOMA MULTIPLEX

LOUIS B. MOUNT, M.D.

ST. PETERSBURG, FLA.

Steatocystoma multiplex, a distinct clinical entity which was first described by Bosellini [1] in 1898, is characterized by the occurrence on various areas of the body where lanugo exists of small cystic tumors involving the pilosebaceous apparatus without causing any change in the appearance of the surrounding skin.

Bosellini [1] termed the condition multiple follicular cutaneous cysts. It has been given various names: sebocystomatosis, multiple steatomas, steatomatosis, widespread trichosebaceous cystic nevus and steatocystoma multiplex. The last term was coined by Pringle and seems to cover fully the requisites for a proper nomenclature.

The disease affects essentially young persons. Of the seventeen recorded cases, in fifteen the condition began between the ages of 13 and 28, in one at 32 and in one at 61. Males are predominantly subject to it, the ratio of involvement in the two sexes being more than 3:1. The duration of the disease before medical aid was sought varied from two to fourteen years. This can be accounted for readily because of the complete lack of subjective symptoms. No history of any preceding cutaneous disease or of any concomitant disease or symptoms which might in any way be connected with the condition has been noted. In fact, nothing definite is known to which its causation can truly be ascribed.

The tumors, located in the main where there is lanugo, are described as follows: They are covered and surrounded by normal-appearing skin and are attached to the overlying skin and freely movable with it; they vary in size from that of a millet seed to that of a small cherry; they are semioval, hemispherical or rounded, the smaller ones being more pointed than the larger ones; they are not sensitive to pressure, and they have a color not unlike that of natural skin or present a yellowish or somewhat bluish shade. When incised they give issue to a greasy or oily, transparent, translucent or opaque, colorless, milky-hued or yellowish, odorless, more or less fluid substance.

Read at the Fifty-Ninth Annual Meeting of the American Dermatological Association, Inc., Swampscott, Mass., June 4, 1936.

1. Bosellini, P. L.: Beitrag zur Lehre von den multiplen folliculären Hautcysten, Arch. f. Dermat. u. Syph. **45**:81, 1898.

Bosellini's case description, his careful histologic observations and the sound conclusions he arrived at are as follows:

A 40 year old man had irregularly distributed round or oval tumors varying in size from that of a millet seed to that of a cherry, located on the trunk from the shoulder blades to the nates. The lesions were freely movable over the deeper tissues. The skin covering them was thinned and could not be raised in folds; its sensibility was undisturbed. The eruption had first been noted when two or three lesions appeared on the thorax eight years previously. No disease of the skin preceded them. The contents of a lesion was a yellowish white fatty substance of syrupy consistency exactly like half-chilled or semisolid olive oil or liquid petrolatum. It had no odor.

Histologic examination showed that in the cutis there were cysts with walls of two layers, an inner one of epithelial and an external one of connective tissue. The epithelial sheath consisted of two or three layers of cells. The cells were smooth, lamellar and polygonal, possessing a thin, hardly visible cell membrane, a scanty homogeneous protoplasm and a single oval, comparatively large, easily stained nucleus. In the stratum spinosum of the follicle there were no changes except that its thickness varied in accordance with the dilatation. There was a constant partial dilatation in the middle of the follicle where the hair duct and gland duct intermingle. The sebaceous glands in themselves showed no changes. What happened to them was due to the mechanical pressure produced by the cysts. The same could be said of the sweat glands. The continuity of the epidermis was uninjured. There was a slight thinning over very large cysts, and the interpapillary pegs were somewhat flattened. The derma and subcutaneous tissue presented nothing striking as far as the muscle, connective and elastic tissues or the vessels of the panniculus adiposus were concerned. The pericystic connective tissue showed no cellular infiltration, though it was denser than normal and sclerotic.

As the result of his studies, Bosellini arrived at the following conclusions:

1. The prime cause of the formation of the cyst is a process of keratinization which causes an obstruction to the outflow of the material secreted by the sebaceous glands.

2. The fluid poured into the follicle remains there and causes a dilatation at the point of entrance of the gland duct into the hair follicle.

3. This dilatation remains confined to the follicle so that the sebaceous gland with its cells never takes part in the formation of the cyst wall.

4. The dilatation appears to be ended as soon as the gland or its acini cease pouring out fat into the cavity of the cyst. This occurs only when the last acinus has vanished.

5. This disappearance is caused by the progressive atrophy which the acini suffer because of the pressure between the cyst wall and the surrounding sclerotic tissue which becomes thickened around the cyst.

6. The content of the cysts is always pure fat, as it represents the simple secretion of sebaceous glands.

7. The participation of the sweat glands in the formation of the cysts in question can be excluded with the utmost certainty.

Cases of similar involvement have been described by Pringle,[2] McPhedron,[3] Günther,[4] Klausner,[5] Cady,[6] Orr,[7] Ormsby and Finnerud,[8] Shaw,[9] Usher,[10] Lisi,[11] Prakken,[12] Parounagian[13] and Robinson.[14]

The conclusions reached by some of these investigators are worthy of citation because they show divergences of opinion as to the formation and exact localization of the lesions.

Galloway in his report on the microscopic study of a biopsy specimen from Pringle's patient stated:

> The cyst has an epithelial lining of cells varying in thickness. The shape of the cells forming this epithelial lining is oval or spheroidal, sometimes a little elongated apparently on account of the pressure of the cyst contents, but never resembling in appearance the upper epithelium of the epidermis nor showing any tendency to become transformed into horny epithelium. On the contrary, it is of glandular type. The inner layers of the epithelium lining are seen to be undergoing necrosis, but the outer layers are vigorous and rest with the intervention of a basement membrane upon the connective tissue of the corium which is arranged in concentric layers because of the pressure of the tumor. Adhering to the side of this cyst can be seen in places lobules of sebaceous gland, in some places atrophied by pressure, in others apparently quite healthy. The epithelium of these lobules is seen to be in direct continuity with the epithelial walls of the cyst. In the immediate neighborhood of the tumor, situated in the usual position in the cutis, are numerous large hypertrophied sebaceous glands. In some of these

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2. Pringle, J. J.: A Case of Peculiar Multiple Sebaceous Cysts: Steatocystoma Multiplex, Brit. J. Dermat. **11**:381, 1899.

3. McPhedron, A.: Multiple Sebaceous Cysts: A Case, J. Cutan. Dis. **23**:117, 1905.

4. Günther, H.: Ueber eine besondere Talgdrüsenaffektion-Sebozystomatosis, Dermat. Wchnschr. **64**:481, 1917.

5. Klausner, E.: Über angeborene bzw. heriditäre Cystenbildung im Bereiche der Talgdrüsen, Dermat. Wchnschr. **65**:711, 1917.

6. Cady, L. D.: A Case of Generalized Steatoma, Arch. Dermat. & Syph. **9**:96 (Jan.) 1924.

7. Orr, H.: Multiple Symmetrical Cutaneous Cysts or Steatomata, Brit. J. Dermat. **36**:31, 1924.

8. Ormsby, O. S., and Finnerud, C. W.: Steatocystoma Multiplex, Arch. Dermat. & Syph. **22**:822 (Nov.) 1930.

9. Shaw, H. C.: A Case for Diagnosis (Syringocystadenoma? Steatoma?), Arch. Dermat. & Syph. **23**:1168 (June) 1931.

10. Usher, B.: Steatocystoma Multiplex, Arch. Dermat. & Syph. **26**:387 (Aug.) 1932.

11. Lisi, F.: Nevo-cistico-tricosebaceo diffuso del tronco, Gior. ital. di dermat. e sif. **73**:1325, 1932.

12. Prakken, J. R.: Ueber Sebozystomatosis, Dermat. Ztschr. **66**:215, 1933.

13. Parounagian, M. B.: Multiple Steatomas, Arch. Dermat. & Syph. **27**: 833 (May) 1933.

14. Robinson, L. B.: Sebocystomatosis or Steatomatosis, Arch. Dermat. & Syph. **29**:461 (March) 1934.

glands secretion has collected, in others the epithelium is swollen and seems on the point of breaking down. In the sections examined the actual course of the duct from the cyst cannot be definitely traced, but lying between the cyst and the surface are sections of hair follicle and sebaceous duct. The sweat glands are unaffected.

Galloway therefore regarded the tumor as due to hypertrophy of the sebaceous gland, liquefaction of its contents and the retention of its secretion. All the lobes of the gland do not undergo distention and atrophy at the same time, and the lobules retaining their normal appearance are pressed to the side by the increasing tumor but remain in continuity with it. It is possible that these normal lobules force secretion into the cyst which is formed by the remainder of the gland. Thus Galloway's opinion differs completely from that of Bosellini as to the exact portion of the pilosebaceous structure involved.

Günther in his article stated that the constant localization of the cysts in close relationship to the sebaceous glands and the contact of many gland lobes flattened by the cysts with the cyst walls indicates an etiologic connection between the cysts and the sebaceous glands and that the cysts undoubtedly arise through blocking and dilatation of the gland ducts. He did not agree with Galloway. He stated that while his sections did show in places an open communication between a part of a gland and the lumen of the cyst he nevertheless believed that those openings were in all probability artificial lesions of the cyst wall.

Klausner described three cases. The first two occurred in brothers. The third case was also in a male patient. The histologic changes were similar to those described by Bosellini. The outstanding feature in the third case was the occurrence of the disease in three generations. A brother and the mother of the patient had identical cysts in the skin, and the mother stated that her mother also had many similar spots on her skin.

On the basis of this appearance of the disease in three generations Klausner maintained that there are a congenital anlage and a hereditary factor in steatocystoma multiplex. He stated that notwithstanding the fact that in the recorded cases the disease is said to have been existent for from two to eight years only, this does not speak against the assumption that the anlage to cystic formation in the skin of the patients may have been congenital.

Cady stated that the cyst wall is made up of layers of stratified squamous epithelium and that the sebaceous gland does not partake in the formation of the cyst wall. His observations agree with those of Bosellini and are contrary to those of Galloway.

Ormsby and Finnerud described two cases which formed the basis for the first really complete study of the disease made in this country.

These authors, as a result of their histologic studies, summarized their observations as follows:

1. The cysts are caused primarily by a keratotic plugging of the duct of the sebaceous gland at its entrance onto the skin surface through a follicle mouth which it shared with its accessory lanugo hair follicle.

2. The cysts are formed secondarily by a continued secretion of the sebaceous glands, which aré at first normal and which later undergo pressure atrophy and cease to function.

3. The cysts form primarily in the sebaceous gland duct, the walls of which give rise through stretching and proliferation to the walls of the cysts. The walls of the cysts are therefore derived from the epidermis on the one side of the keratotic plug and from the epidermis proper or from the epithelium of the lanugo hair follicle on the other. (However, in the instance of a cyst of a sebaceous gland duct in which the duct opens into a hair follicle, the walls of the cyst would be continuous only with the epithelium of the hair follicle.)

4. As the cyst enlarges, its surrounding structures become altered from pressure, the lanugo hair follicle and arrectores pilorum becoming distorted, atrophied and flat-pressed against its walls and the adjacent connective tissue sclerotic and enveloped about it.

5. There was no evidence recognized of the cyst being formed within the lanugo hair follicle. . .

6. Bosellini's observations are herein confirmed, with the exception of his conception as to the original site of formation of the cysts, which apparently in our cases take their origin in the sebaceous gland duct rather than within the hair follicle. This is confirmed by Günther and Cady.

7. No embryonic structures are noted which may be a factor in etiology.

Lisi, who called the condition "widespread trichosebaceous cystic nevus," noted some marked differences in the histologic picture in his case, namely, a papillomatous growth of the gland wall and fibrous granulation tissue with numerous spaces lined with giant cells, the end-result of an involution through absorption of the cyst. He did not believe that the involvement represented retention cysts but rather regarded it as new growths. No case of a similar condition existed in the patient's family, yet Lisi felt that the familial and congenital occurrence described in the literature supported the idea of a new growth type of nevus. He stated that the tendency to cyst formation of the ducts is to be regarded as a congenital anomaly of development. Since there was in both the family and the patient a congenital weakness of the nervous system, he was inclined to accept a congenital causation because of an inferiority of the ectoderm. He used the title to point out the nevoid nature of the condition.

Dubreuilh and Aucḥé,[15] under the title of *"Kystes graisseux sudoripares,"* reported three cases of multiple small cysts of the coil glands.

15. Dubreuilh, W., and Auché, B.: Kystes graisseux sudoripares, Arch. clin. de Bordeaux **5**:387, 1896.

Their clinical descriptions do not in any way differentiate the condition in their cases from steatocystoma multiplex. They stated that after the cysts are punctured there is extruded an odorless fatty matter which resembles in some instances thick olive oil and in others thick cream or butter.

Notwithstanding the fact that through their elaborate histologic study of the cysts they showed them to be connected with the sweat ducts, Dubreuilh and Auché pictured the relationship to the sebaceous glands as follows:

> In places the nearly normal sebaceous glands are simply in contact with the external surface of the cyst; elsewhere they are deformed, elongated and flattened on the cyst but are separated from the epithelial layer by a more or less thick connective tissue wall. In still other places this connective tissue separation does not exist, the sebaceous gland being in direct contact with the epithelial lining of the cyst.

This description corresponds exactly with that of the disease under consideration. Furthermore, a careful search of recent works on physiology has failed to disclose any reference to the formation of fatty material in the sweat glands.

Bosellini also was reluctant about accepting the correctness of Dubreuilh and Auché's conclusions in localizing the changes in the sweat glands and ducts in the cases described by them.

Though the pathologic picture has been fairly well covered in the various reports, it might be well to summarize the observations: The only changes noted in the epithelium are a slight thinning over the larger cysts, a flattening of the rete pegs and a keratinization of the follicles. In the corium there is no evidence of any cellular infiltration, of vascular changes or of pathologic changes involving the glandular structures except such as can be accounted for by the pressure exerted on them by the cysts. The cysts, at various depths in the corium, are composed of an epithelial inner wall consisting of one or two or more layers of cells identical with those lining the ducts of the sebaceous glands and an outer circular connective tissue sheath. A definite relationship between the cysts and the sebaceous glands is shown. The only exception to this view is the statement of Galloway to the effect that the structure involved in the formation of the cyst is the sebaceous gland itself and not the duct or the follicle.

The method of formation of the cyst, after what has been stated in the individual reports, is easily surmised. For some unknown reason a blocking of the excretory passage of the sebaceous gland takes place. This causes a gradual dilatation of the duct or follicle, a dilatation which continues until the gland atrophies because of the pressure the cyst exerts on it.

Fig. 1 (author's case).—Distribution of lesions on the side and back of the trunk.

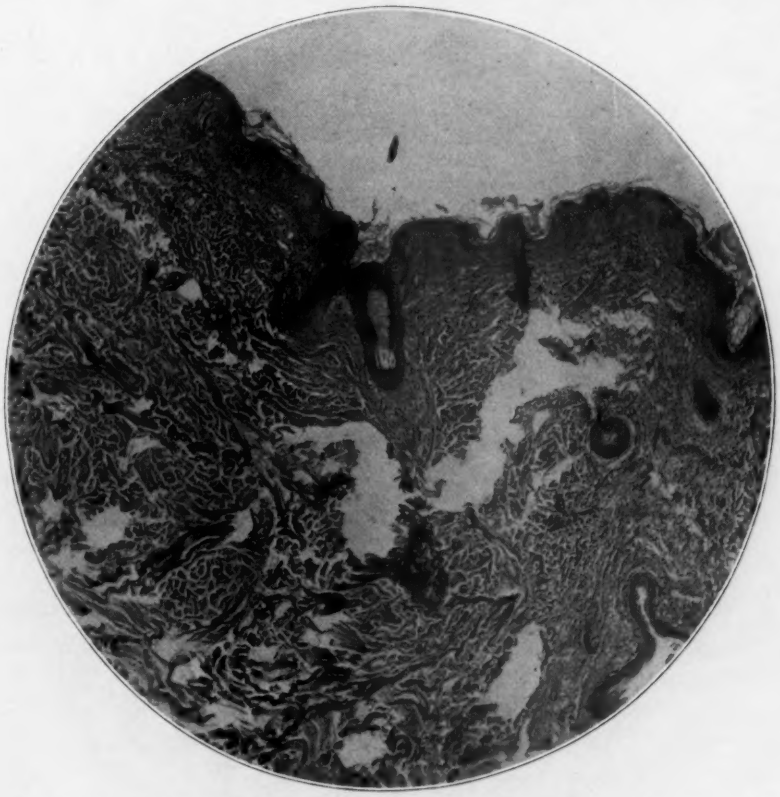

Fig. 2.—Photomicrograph, × 50, of a section of skin showing plugging of the hair follicle. In the lower right hand corner is a cyst with collapsed walls.

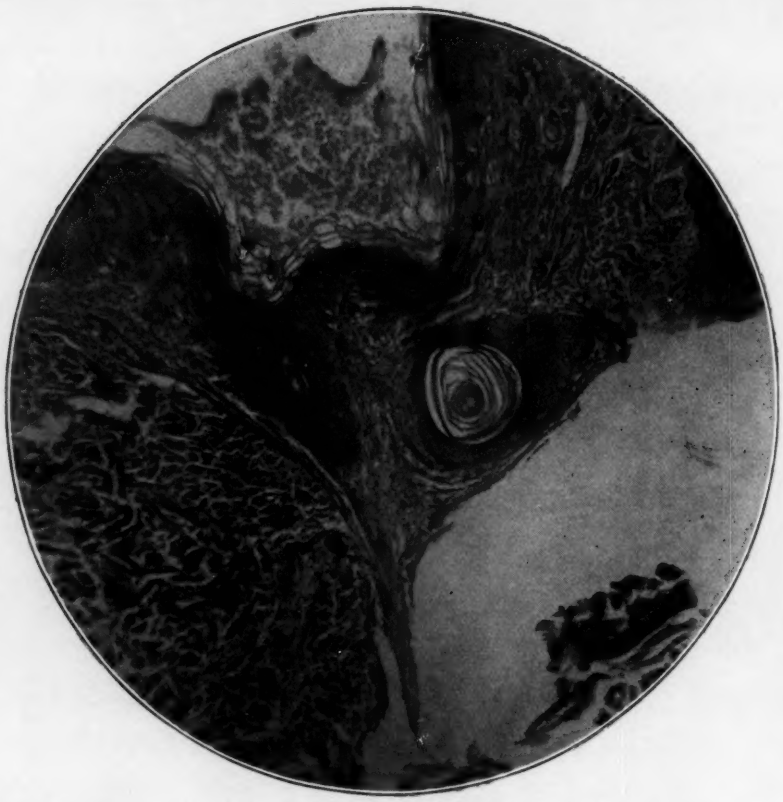

Fig. 3.—Photomicrograph, × 125, showing a hair follicle in tangential section. In the keratin plug lanugo can be seen.

Fig. 4.—Photomicrograph, × 50, showing a cyst in the cutis. The cyst is lined with stratified squamous epithelium. Note the compressed displaced hair follicle.

I had the opportunity to study the following case:

REPORT OF A CASE

Miss N. G., aged 21, of sturdy, healthy appearance, presented no visible anomalies of development. Her family history was of no importance. She had had no illnesses other than the usual diseases of childhood. Menstruation began when the patient was 15; it was regular, occurring at intervals of twenty-eight days.

Her present dermatologic condition began with an eruption on both lateral surfaces of the abdomen fully four years before she was seen. The lesions, which at first were but few and very small, gradually increased both in size and in number. Scattered over both lateral surfaces of the trunk, across the back, on the scapular areas and on the flexor surface of the right forearm there were papular lesions varying in size from almost pinpoint to 3 mm. in diameter; some were of the normal color of the skin; others showed various shades of yellow. They had a more or less rounded base, and the younger lesions showed a somewhat pointed top. When the overlying skin was moved the lesions moved freely with it and were seen to be attached to it. Puncture of several of the lesions caused a clear homogeneous odorless yellow fluid to exude. There were no subjective symptoms. The blood picture, the chemical composition of the blood and the urine were normal.

Two biopsies were made. Examination of both specimens in serial section showed the same picture. The surface epithelium was intact, that is, its continuity was not destroyed. In the areas over the tumors it was flattened and somewhat thinned. The follicles showed plugging with keratinized material. At varying depths in the corium there were cysts lined with stratified squamous epithelium internally and with connective tissue externally. The epithelial sheath was of varying thickness, while the connective tissue covering was dense and sclerotic. The follicles were pushed off to one side. The sebaceous glands in the immediate vicinity of the cysts had atrophied completely.

The histologic examination showed the lesion to be localized in the ducts of the sebaceous glands. This was in accord with the observations of Ormsby and Finnerud and others. The clinical and microscopic manifestations pointed to the diagnosis of steatocystoma multiplex.

405-408 Florida National Bank Building.

ABSTRACT OF DISCUSSION

DR. CLARK W. FINNERUD, Chicago: Dr. Mount's observations are approximately the same as Dr. Ormsby's and mine. There is no question about the fact that the disease is an entity. Since we reported those cases in 1930 I have observed the disease in very limited form in two cases, in one of which acne vulgaris of the body was present. I was unable to make biopsies in those cases, but the lesions contained the oily material and had all the clinical characteristics of the classic description. However, in almost all the cases previously reported the lesions have not been associated with acne vulgaris.

ACNE NECROTICA MILIARIS OF THE SCALP

HAMILTON MONTGOMERY, M.D.
ROCHESTER, MINN.

Under the title "acne necrotica miliaris of the scalp" Lane [1] in 1933 reported the first cases in this country of the condition which had been described by Sabouraud in 1928 [2] and 1932 [3] under the title *acné nécrotique miliare*. Ormsby,[4] under the title "pustular perifolliculitis," described an uncommon variety of folliculitis of the scalp, found in adults, which is comparable to acne necrotica miliaris. Sabouraud regarded the condition as an abortive or diminutive form of acne necrotica and showed that the histologic changes were comparable in the two conditions and that Staphylococcus aureus played a rôle in the etiology, as evidenced by cultures and histologic examination of the crusts.

Clinically one encounters from a dozen to a hundred pinhead-sized lesions (from 1 to 3 mm. in diameter) on any part of the scalp. On superficial examination these lesions might be regarded as excoriations or tiny crusts, but careful examination with the hand lens reveals that many of them are tiny vesicles or vesicopustules and that each has a hair follicle as its center. The lesions may last for several days or for several weeks.

Since Lane's report, in June 1933, twenty-five cases of acne necrotica miliaris have been observed in the section on dermatology and syphilology at the Mayo Clinic. Two of these are reported here because of the presence of typical clinical and histologic changes.

REPORT OF CASES

CASE 1.—A man aged 29 was seen in May 1934 because of "scalp trouble" of ten years' duration, which had started as areas of localized itching. A tiny vesicle would appear in each area and would break in five or six hours. The vesicles would be followed by oozing and crusting. The crusts would be pulled off when the hair was combed. New lesions would continue to develop in the same areas

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From the section on Dermatology and Syphilology, the Mayo Clinic.

1. Lane, J. E.: Acne Necrotica Miliaris of the Scalp, Arch. Dermat. & Syph. **28**:10-12 (July) 1933.

2. Sabouraud, R.: Pyodermites et eczémas: Maladies du cuir chevelu IV. Les maladies suppuratives et exsudatives, Paris, Masson & Cie, 1928.

3. Sabouraud, R.: Diagnostic et traitement des affections du cuir chevelu, Paris, Masson & Cie, 1932.

4. Ormsby, O. S.: A Practical Treatise on Diseases of the Skin for the Use of Students and Practitioners, ed. 4, Philadelphia, Lea & Febiger, 1934, p. 1210.

month after month. A few of the lesions had attained a larger size and had formed small ulcers. The patient had consulted many specialists and had spent a great deal of time and effort in an attempt to rid himself of the condition.

Examination of the scalp with a hand lens revealed multiple superficial ulcers which were from 1 to 3 mm. in diameter and irregular in shape (fig. 1). The ulcers had yellowish pink, shiny bases, and a hair passed through each individual lesion. Many lesions had a reddish yellow crust of dried serum, removal of which resulted in oozing of serum. Several lesions were in the tiny vesicopustular stage. Involution apparently had resulted in tiny superficial scars but had not been accompanied with loss of hair. There was no evidence of seborrhea in the scalp.

Examination of a specimen (fig. 2) which was obtained from one of the lesions for biopsy revealed the formation of early intra-epidermal vesicles, which probably represented the initial lesions. The vesicle studied was filled with serum and did not represent an artefact. Deeper in the section there was an irregularly

Fig. 1.—Pinhead-sized vesicopustular lesions of the scalp, full size.

shaped acanthotic hair follicle surrounded by an area showing a chronic inflammatory reaction which consisted of lymphocytes and fibrous tissues. This probably represented an old chronic lesion that was undergoing involution. The infiltrate extended throughout the cutis. There was some obliteration of the lumens of the blood vessels. There was no destruction of the hair. Gram's stain failed to reveal cocci in the vesicle, and only an occasional staphylococcus could be seen about the hair follicle.

The patient was given 10 per cent ammoniated mercury ointment to use locally. The general examination gave essentially negative results. In December 1936 the patient reported relief from the use of the ointment, but the lesions continued to recur. However, the ointment caused more rapid involution of the individual lesions.

Case 2.—A dentist, aged 42, was examined in June 1934 because of sacroiliac pain and "scalp trouble." Since 1918 he had noticed pruritic "lumps" and vesicles which had spread over the vertex of the scalp. The itching had been intense, and when he had scratched the vesicles the tops had come off the lesions

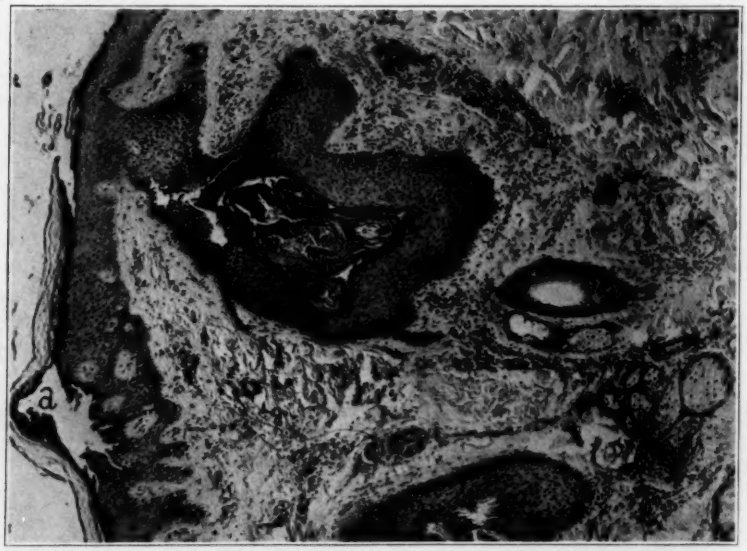

Fig. 2.—Acne necrotica miliaris. An intra-epidermal vesicle filled with serum is seen at *a*. There is a large, irregular acanthotic hair follicle with fibrosis and a chronic inflammatory reaction about it, representing an older lesion undergoing involution.

Fig. 3.—Superficial ulceration between two hair follicles with a serosanguineous crust; staphylococci are visible at the margins of the ulceration.

and crusts had formed. Each lesion had lasted for from three or four days to a number of weeks. In 1921, because of a question of exposure to syphilis, the patient had received ten injections of neoarsphenamine. This had caused complete disappearance of the lesions of the scalp for four years. From 1925 until he came to the clinic he had continued to have lesions of the scalp. These had varied in number and severity. He had not been able to obtain relief with any type of local applications, including those of preparations containing sulfur.

Clinically, over the vertex of the scalp there were several pinhead-sized superficial erosions that were colored yellowish pink as a result of the presence of dried serum. Removal of a crust revealed a slightly depressed ulcer. A few tiny vesicopustules were seen. There was no loss of hair.

Examination of a specimen which was obtained for biopsy revealed the picture seen in figure 3. The superficial ulceration which was situated between two hair follicles was covered with a serosanguineous crust and a moderate infiltrate which was composed chiefly of lymphocytes and extended into the midcutis. Numerous staphylococci could be demonstrated at the margins of the ulcer. Slight thickening of the blood vessels in the midcutis was seen.

The patient was given 20 per cent ammoniated mercury ointment to apply locally to the scalp, and there was marked improvement within one week.

COMMENT

In all the twenty-five cases which have been observed at the clinic, a tiny primary vesicle or vesicopustule was demonstrated. The following analysis of these cases simply emphasizes points previously brought out by Lane and by Sabouraud in their respective articles. The majority of the patients observed at the clinic were middle aged; the youngest was 14 and the eldest 67. Only eight of the twenty-five patients had signs of seborrhea, and most of them were young. Surprisingly, only five of the twenty-five patients were women; this is in contrast to an equal division between the sexes reported by Lane. Intense pruritus was the outstanding complaint. In some cases, however, this was not marked, and the patient was not greatly inconvenienced by it. Only six of the twenty-five patients gave any evidence of neurosis, chronic nervous exhaustion, or neurodermatitis elsewhere, but in all these the definite tiny vesicopustules could be demonstrated. There was no evidence of excoriations or linear scratches of the type one encounters in neurotic excoriations. The lesions were confined to the scalp in all cases except one, in which similar tiny follicular vesicopustules, from 1 to 2 mm. in diameter, occurred in the bearded region. In one other case there was an associated furuncle of the cheek; this supported Sabouraud's contention that this disease is of staphylococcic origin. Two of the patients had a few larger crusted ulcers of the size usually seen in acne necrotica, but generally the lesions were uniform in size; they averaged from 1 to 2 mm. in diameter, rarely exceeding 3 mm., and it was necessary to use a hand lens to determine their stage and character. Histologic studies in three cases revealed features which

fitted in with the description given by Sabouraud, with the early stages of acne necrotica as described by Gans [5] and with the picture shown by histologic studies of acne necrotica that I have made at the clinic.

Several of the patients responded to treatment with ammoniated mercury ointment. This would seem logical if this disease may be regarded as a staphylococcic infection. Sabouraud reported success from the use of preparations containing sulfur in the treatment of this condition.

SUMMARY

Acne necrotica miliaris of the scalp presents numerous pinhead-sized vesicopustular and crusted lesions, which as a rule are limited to the scalp. These leave minute superficial scars, which often are visible only with the aid of a hand lens. The lesions are much smaller than those of acne necrotica, although acne necrotica miliaris is probably a diminutive variant of the former. Seborrhea apparently does not play a prominent rôle in the majority of instances. Vesicular seborrheic eczema can be distinguished readily by concomitant observations. Neurotic excoriations are considerably larger, and in this condition one cannot demonstrate the tiny vesicopustules. The histologic picture of acne necrotica miliaris is that of a small or early lesion of acne necrotica. The staphylococcus seems to be an important etiologic agent. The intensity of pruritus as a rule is out of all proportion to the number and size of the lesions. Treatment should be prescribed along the lines advocated for a staphylococcic infection rather than along those used for a seborrhea.

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5. Gans, Oskar: Histologie der Hautkrankheiten: Die Gewebsveränderungen in der kranken Haut unter Berücksichtigung ihrer Entstehung und ihres Ablaufs, Berlin, Julius Springer, 1925, vol. 1, pp. 345-347.

SECTION ON DERMATOLOGY AND SYPHILOLOGY OF THE AMERICAN MEDICAL ASSOCIATION

ITS FOUNDATION AND EARLY YEARS

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CLEVELAND
AND
PAUL E. BECHET, M.D.
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In the year 1869 at its annual meeting the Assembly of the American Medical Association adopted a resolution which recognized the specialties as proper and legitimate fields of medical practice. A few of the specialties were then organized into sections, but dermatology was not represented until eighteen years later. In the meantime, J. V. Shoemaker of Philadelphia read a paper on "Mechanical Remedies in the Treatment of Skin Diseases" before the Section of Practice of Medicine and Materia Medica in 1883.

In 1884 in the same section Louis A. Duhring read a paper on "Dermatitis Herpetiformis." In 1887 Henry J. Reynolds addressed the section, his subject being "A New Method of Producing Local Anesthesia of the Skin."

In the same year L. Duncan Bulkley presented two papers, one on "Infant Feeding, Especially with Reference to Subjects with Infantile Eczema" before the Section on Diseases of Children, the other on "The Treatment of Felon Without Incision" before the Section of Practice of Medicine and Materia Medica. This scattering of dermatologic material in sections not particularly interested in it called attention to the need of a new section limited to cutaneous medicine. It is therefore not surprising that at the session of the General Assembly in the central music hall in Chicago in 1887, the Section on Cutaneous Medicine and Surgery was formed. L. Duncan Bulkley had much to do with its conception and was elected its first chairman.

One of us (P. E. B.) must now record the fact that a certain rising young man from Cleveland, by the name of William T. Corlett, was equally active in the formation of the section and was its first secretary. He was one of its saviors when it subsequently fell into evil days.

The first meeting of the section took place on May 8, 1888, in Cincinnati, where the members were elaborately entertained by one of Cincinnati's leading citizens, the late Augustus Revogli. By dint of much hard work, William T. Corlett had prepared a splendid program.

Papers were read by Zeisler of Chicago, Ohmann-Dumesnil of St. Louis, Corlett of Cleveland, Fleischner of New Haven, Palmer of Louisville, and others.

The second meeting was held in 1889 in Newport, R. I., and I. E. Atkinson of Baltimore was elected chairman. Before the 1890 meeting, which took place in Nashville, Tenn., however, Atkinson resigned, and L. Duncan Bulkley was asked to take the chair. He became a more or less permanent chairman, retaining the office until 1896. The only interruption in his tenure occurred in 1893, when Duhring was persuaded to act as chairman by a group consisting of Corlett of Cleveland, Wende of Buffalo, Revogli of Cincinnati and Brayton of Indianapolis. The success of these men was of only short duration, for two years later Dr. Bulkley was again in the saddle.

With a few exceptions, most of the men who had attained leadership in dermatology were conspicuous by their absence, and the section became, under its permanent chairman, more a political arena than a debating ground for scientific dermatology. Records of the meetings were not even kept, much less reported in *The Journal of the American Medical Association*. However, the permanent chairman hammered away at his favorite theme, dermatotherapy. Shoemaker of Philadelphia was especially enamored with the oleates as local applications and in and out of season recommended them for many varied dermatoses.

During this time the status of the section was at so low an ebb that it was debated—how extensively we do not know—whether or not to discontinue it, as the task of arousing interest seemed hopeless, particularly among those who were best able to contribute papers of real scientific value. However, it seemed to one of us (W. T. C.) that it was unwise to abandon the section. It supplied a means for the younger men to demonstrate their knowledge of dermatology and served a useful purpose in estimating the qualifications of candidates for the American Dermatological Association.

Under the leadership of such men as Corlett, Wende and Revogli the section survived, and with Augustus Revogli serving as chairman in 1897 it experienced a renaissance. As the years went on it became less difficult to secure worth-while papers and leaders in the field of dermatology to discuss them. Under these circumstances animosities were soon forgotten, and the section gradually assumed its present enviable situation. With the passing of the years, its programs have become increasingly important, and its meetings now and for many years have been of the highest character.

BOWEN'S PRECANCEROSIS WITH CARCINOMA

REPORT OF A CASE OF ORGANIZED SYPHILITIC VULVAR PAPULES, LEUKOPLAKIA, BOWEN'S PRECANCEROSIS AND BASAL CELL CARCINOMA

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The case to be described was deemed worthy of report because of the interesting development. It is not uncommon to find instances of Bowen's disease of the vulva, since cases of that disorder have been presented by Jessner,[1] Bloch,[2] Geiger,[3] Fuhs,[4] Rusch[5] and Arzt.[6] Rousset[7] gathered eighteen cases in which Bowen's disease affected the mucous membranes—seven in which it affected the glans and eleven in which it involved the vulva. In none of these cases was there any indication that syphilis had preceded Bowen's disease or played any part in its development. There still persists a great controversy in the literature as to whether Bowen's disease is a precancerosis or merely a stage in the development of a basal, squamous or mixed basal and squamous cell carcinoma. Grütz[8] and Gutman[9] first showed microscopically the change of a lesion of Bowen's disease into basal cell carcinoma. Sequiera and Turnbull[10] were able to demonstrate histologically the presence of a basal and squamous cell carcinoma in four of six cases of Bowen's disease. Fuhs[4] presented before the dermatologic society of Vienna, Austria, a case of Bowen's disease in which the

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The case is reported by permission of Prof. M. Oppenheim, Director of the Department of Cutaneous and Venereal Diseases, Wilhelminenspital, Vienna, Austria.

1. Jessner, S.: Die Bowensche Krankheit, Arch. f. Dermat. u. Syph. **134**: 361, 1921.
2. Bloch, B.: Zentralbl. f. Haut- u. Geschlechtskr. **21**:42, 1926.
3. Geiger, R.: Zentralbl. f. Haut- u. Geschlechtskr. **34**:27, 1930.
4. Fuhs, H.: Zentralbl. f. Haut- u. Geschlechtskr. **34**:26, 1930.
5. Rusch, P.: Dermat. Wchnschr. **83**:1450, 1926.
6. Arzt, L.: Zentralbl. f. Haut- u. Geschlechtskr. **30**:554, 1929.
7. Rousset, J.: Les dyskeratinisations epitheliomateuses, Paris, Masson & Cie, 1931.
8. Grütz, O.: Klinisch-histologische Beobachtungen zum Problem der Krebsentstehung, Ztschr. f. Krebsforsch. **21**:415, 1924.
9. Gutman, C.: Ueber die Bowensche Dermatose, Dermat. Wchnschr. **80**: 641, 1925.
10. Sequiera, J. H., and Turnbull, H. M.: Multiple Carcinoma of the Skin: Precancerous Dermatosis of Bowen, Brit. J. Dermat. **33**:173 and 211, 1921.

lesion was on the inner side of the labium minus pudendi and later became a squamous cell carcinoma. Nicolas [11] and his co-workers stated that Bowen's disease of the mucous membranes occurs most commonly in females and that the lesions always develop into carcinoma. Hudelo [12] and his colleagues expressed the belief that in all cases of Bowen's disease of the mucous membranes the disorder becomes carcinomatous and reported two cases in support of his view.

In the case reported here the patient had previously received two courses of antisyphilitic treatment, but vulvar papules persisted, and the Wassermann reaction of the blood remained consistently positive.

Fig. 1.—Organized papules associated with leukoplakia and edema of the vulva.

Two years later leukoplakia developed on the vulva, and a year after this an erosion histologically identified as a lesion of Bowen's disease appeared on the labium minus. A basal cell carcinoma developed in the same area within a year.

REPORT OF CASE

H. W., a woman aged 38, was first seen in the dispensary of the department of cutaneous and venereal disease of the Wilhelminen hospital, in the service of Prof. M. Oppenheim, on Dec. 2, 1932.

11. Nicolas, J.; Massia, G., and Rousset, J.: La maladie de Bowen des muqueuses: Discussion de sa nature à propos de trois nouveaux cas, Ann. de dermat. et syph. **1**:1113, 1930.

12. Hudelo, Lucien, and Cailliau: Maladie de Bowen des muqueuses envisagée comme cancer d'emblée, Ann. de dermat. et syph. **4**:813, 1933.

The patient stated that she had had syphilis for four years and had received two courses of combined antisyphilitic treatment, one in 1928 and the other in 1929. Despite the treatment papules persisted on the vulva, and the Wassermann reaction remained positive. She had had scarlet fever, apicitis and myomas.

The patient was married and had three children.

The examination was limited to the genitalia. There was marked edema of the vulva, particularly about the clitoris; over the labia majora and minora were many flat, slightly raised hypertrophic indolent infiltrated papules, partly confluent and erosive. Near the posterior commissure the lesions appeared scarred, presenting a bluish white appearance. The mucous membrane was irregular and more pigmented than normal membrane.

Dark field examinations of material from the lesions disclosed no spirochetes; the Wassermann reaction of the blood was strongly positive, but examination of the spinal fluid gave negative results.

The patient received inunctions of mercury, but a dermatitis developed and treatment with this drug was discontinued. Combined treatment with neoarsphenamine and a bismuth preparation was then instituted, injections being given every five days. The lesions failed to respond to therapy although 3.45 Gm. of neoarsphenamine was given. The edema disappeared, and a biopsy of material from lesions on the vulva was made.

Microscopic Examination.—Sections stained with hematoxylin and eosin showed a marked degree of hyperkeratosis and an acanthosis of grade 2. The cells in the stratum spinosum were edematous, the edema being both intercellular and intracellular. The rete pegs were flattened and widened, and there was edema of the papillary bodies. In this portion the capillaries were dilated and there was a round cell infiltration consisting of lymphocytes, plasma cells and fibroblasts. In the cutis the connective tissue was loose and swollen and the blood and lymph vessels were dilated. The walls of the blood vessels were thickened, this change being most noticeable in the intima. Throughout the section were many new blood vessels and fibroblasts. There was a definite perivascular infiltration consisting of lymphocytes and plasma cells.

In sections stained with the Unna-Pappenheim stain (methyl green pyronine) many plasma cells were present.

Weigert's elastic tissue stain showed that the elastic tissue was fragmented and rarefied in the region of the infiltrate.

A histologic diagnosis of organizing syphilitic papule with leukoplakia was made.

Subsequent Course and Treatment.—On Jan. 7, 1933, the lesions appeared cleaner; they had been treated locally with 10 per cent chlorine in water and 10 per cent mild mercurous chloride and with bismuth subgallate.

On January 15 inguinal glands the size of walnuts were palpable on both sides. Some of the papules on the labia were covered with epidermis, and serum for dark field examination could not be obtained.

On January 24 the patient was dismissed improved.

On February 23 she was seen in the dispensary, and the Wassermann reaction of the blood was found to be strongly positive.

On Jan. 27, 1934, the patient was readmitted to the hospital; her chief complaint was vulvar pain. The Wassermann reaction of the blood was strongly positive.

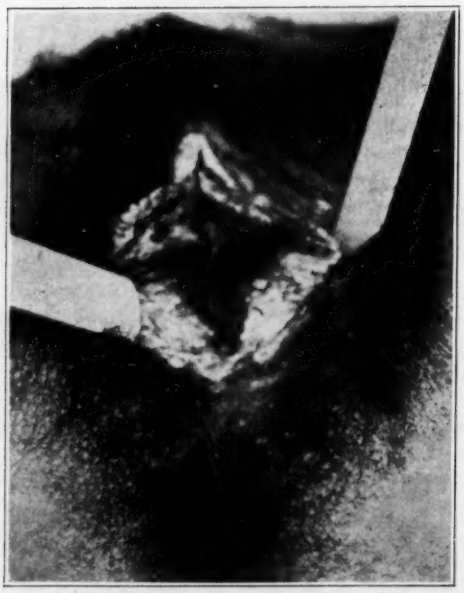

Fig. 2.—Erosion on the labium minus; Bowen's precancerosis and carcinoma.

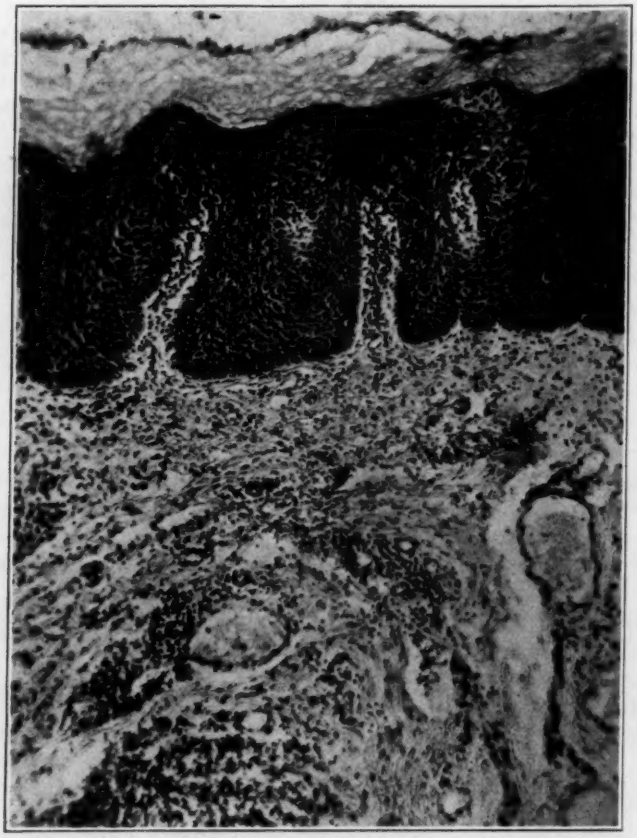

Fig. 3.—Section showing organized syphilitic papule and leukoplakia.

A biopsy made at this time showed the following histologic changes: Marked parakeratosis and high grade acanthosis were present. The cells were edematous, swollen and disoriented. Mitotic figures were present, and the chromatin showed a strong tendency toward clumping. This clumping characteristic was more prominent in some cells than in others. The rete pegs were markedly widened, elongated and irregular, and the papillary bodies were narrowed and few. The cutis and subcutis were edematous, and a dense cellular infiltrate composed of lymphocytes and perivascularly arranged plasma cells was present.

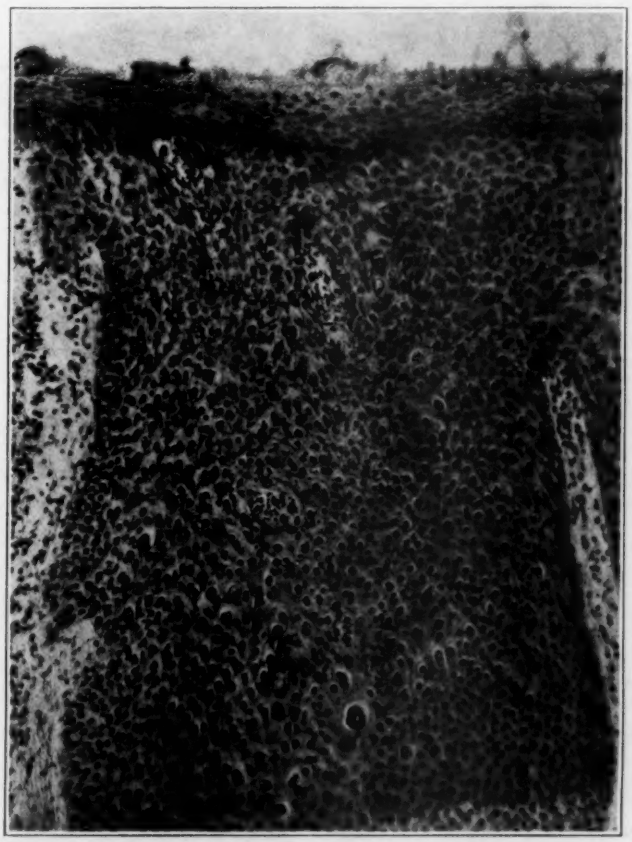

Fig. 4.—Section showing disorientation and clumping of cells and beginning of Bowen's precancerosis.

A diagnosis of beginning Bowen's precancerosis was made.

The patient was given acetarsone by mouth and sent to Professor Schönbauer, of the Jubiläums hospital, for treatment with radium.

She returned to the hospital on March 23, 1934, after having been treated with radium needles. She now complained of pain about the vulva and of marked vaginal discharge. The discharge contained no specific organisms. Treatment with acetarsone was continued, and the patient was dismissed on April 11.

She was readmitted on Jan. 16, 1935, at which time erosions were seen on the inner aspect of the labium minus; there was also a marked inguinal adenopathy. A diagnosis of epithelioma was made, and it was decided to treat the lesions with electrocoagulation, but the patient left the hospital only to return on February 12.

Another biopsy was made, and the picture was now entirely different, consisting of slight parakeratosis but marked acanthosis and separation of epithelium into islands of cells which were for the most part basal. In many places clumping cells and many mitotic figures were still present. Along the edge of the section there was a beginning pearl formation, and the cells closely resembled those of the stratum spinosum. The cells stained poorly and were light. There was a high grade round cell infiltration in the cutis. The lymph vessels and blood

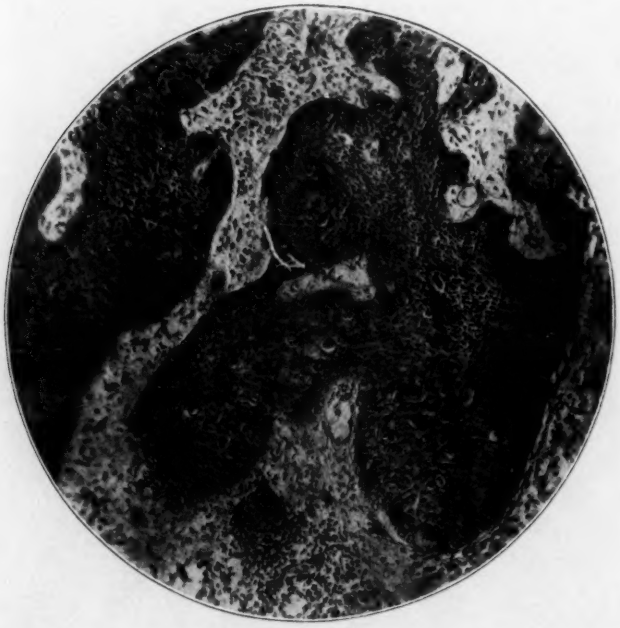

Fig. 5.—Section showing Bowen's precancerosis and basal cell carcinoma.

vessels were markedly dilated. This section showed the presence of basal cell carcinoma.

CONCLUSIONS

A case is reported in which there was association of syphilis, Bowen's precancerosis and basal cell carcinoma.

Bowen's disease of the vulva is not uncommon and is a definite forerunner of epithelioma.

The patient whose case is reported was presented at a meeting of the dermatologic society of Vienna, Austria, by Dr. Alfred Fessler. The diagnosis was corroborated by the members present.

FATE AND ACTIVITY OF AUTOGRAFTS AND HOMOGRAFTS OF SKIN IN WHITE RATS

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A recent review by Trusler and Cogswell [1] indicates that homografts of skin in man are generally unsuccessful. Even grafts that appear to adhere and grow for several weeks later slough.

Since it was observed [2] that young rats supplied some successful "takes" to older hosts, it was thought that homografts which had persisted for a year were of interest and deserved description. Possibly the compatibility that resulted in these transplants may be attributed to the use of inbred Wistar rats. Loeb and King,[3] however, found that inbreeding in rats did not decrease the intensity of the reaction of the host against transplanted organs.

Frequently autotransplants are successful in man, but in all probability there have been few occasions to graft skin to the scalp; thus there has been limited opportunity to observe the growth of hair on transplants. Few observations have also been made on other mammals over a long period. A description of histologic changes and of growth of hair in old autotransplants in rats is therefore included in this account.

HOMOGRAFTS

In the study on homotransplants, 1 to 6 day old rats served as donors to animals aged 30 or more days. Thirty-two grafts were made to the dorsum in a manner similar to that described in a previous article,[2] and eleven of these were persisting and surviving at the end of a month. The hair was growing well at that time, and the grafts appeared to be compatible. Thereafter the condition of the transplants was noted occasionally. Some continued to do well, and the quality and quantity of the hair on the grafts were practically the same as those of the host's hair. Eruptions and necrotic areas occurred in other transplants, and a gradual thinning of the hair took place in many of them.

From the Biological Laboratory, Hamilton College.

1. Trusler, H. M., and Cogswell, H. D.: The Question of Homoplastic Skin Grafting, J. A. M. A. **104**:2076-2077 (June 8) 1935.

2. Butcher, E. O.: Hair Growth on Skin Transplants in the Immature Albino Rat, Anat. Rec. **64**:161-171, 1936.

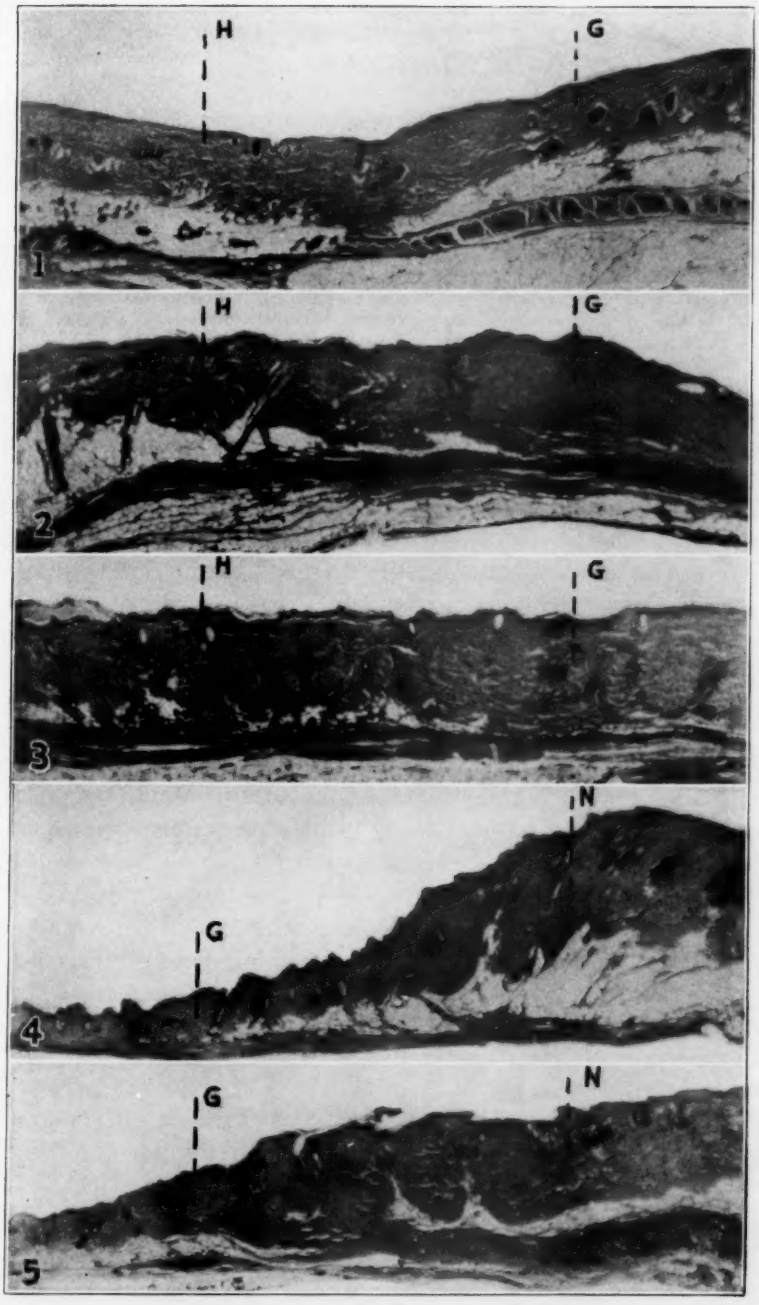
3. Loeb, Leo, and King, H. D.: Transplantation and Individuality Differential in Strains of Inbred Rats, Am. J. Path. **3**:143-169, 1927.

A few even sloughed at various intervals during the first six months. At the end of a year the eight animals which had survived were killed, and the character of the hair and the condition of the grafts were studied. Transplanted skin was identified with certainty in only six cases, and in only one graft was the hair as good as that of the host. That transplant had increased greatly in size, and it appeared similar in quality to the skin of the host. The hair on the other five transplants was fine and sparse. One graft contained several necrotic areas; this indicated that it was incompatible and would have completely degenerated in time. Removal of the hair disclosed scar tissue; this confirmed external identifications and clearly demarcated the surviving grafts. The hair together with some of the surrounding skin of the host was fixed and sectioned.

Histologic examination of the only graft that produced good hair showed that it was normal, being in every respect like the tissue of the host (fig., *1*). Since the graft was rotated, the direction of the follicles in it differed from that in the host. The subcutaneous layer contained much fat, the presence of which seemed to augment the growth of hair.

Sections of the other grafts which produced fine and thinly scattered hairs showed that the structure differed greatly from the normal skin of the host. As shown in the figures (*2* and *3*), the subcutaneous fatty layer was entirely lacking. A dense corium rested directly on the panniculus carnosus. A few scattered and degenerate follicles which were producing the fine hairs externally were found.

From first observations one may probably conclude that the presence of fat is necessary for good growth of hair. In other studies, however, I have found hair buds making downgrowths through dense connective tissue and follicles actively producing hair in the absence of fat. One may even suggest that the downgrowths of hair raise the corium in such a way as to invite a deposition of fat into the subcutaneous region. However, this view is not acceptable, since an abundance of fat may often be found when the hair follicles are inactive. It is entirely possible that a lack of fat and soft tissue over a period of time may finally result in the retardation and death of the hair buds. Poor vascular conditions may also be a reason for the failure of growth of hair and the absence of fat. While studies of the results of injections indicate that the grafts are not quite as well vascularized as the surrounding skin, they do not show conclusively that vascularity is the initial cause of poor growth. If, then, a dense corium, lack of fat or less vascularization does not seem to be responsible for the gradual disappearance of hair externally, what does account for it? From careful study it is evident that degeneration leading to death of the hair bud is the main factor. After the gradual decline of activity in the hair follicle the



All the sections were fixed in Bouin's fluid and stained with hematoxylin and eosin. Section 1 is from a homograft (*G*) of similar quality as the skin of the host (*H*); × 35. Sections 2 and 3 are from homografts (*G*) in which the hair follicles had degenerated and the fatty content was reduced; *H*, skin of the host; × 35. Section 4 is from an autotransplant (*G*) in which the follicles had degenerated and the fatty content had disappeared; *N*, normal skin of dorsum; × 35. Section 5 is from an autotransplant (*G*) with an abundance of fat but with degenerating hair follicles; *N*, normal skin of dorsum; × 35.

corium becomes dense, and the fatty content of the subcutaneous tissue is reduced. It is believed that if at any time when the hair is growing, there is a presence of fat or a deposition of fat, this will undoubtedly contribute to a better growth.

AUTOTRANSPLANTS

Autotransplants which involved interchanging skin between the venter and the dorsum or between the head region and the dorsum on the same animal were made. Twenty such transplants were studied, and in not a single instance was the graft at the end of the year producing hair with the characteristic quality of that grown in its original location. Grafts on the head invariably sloughed and cicatrized, possibly because of delayed and poor vascularization. The thick skin from the dorsum on the venter, likewise, met a similar fate. In many instances the hair on grafts on the dorsum were of fine texture and sparsely located, the appearance resembling baldness in man.

Histologically the character of many grafts was similar to that observed in most of the homotransplants (fig., *4*). The corium was dense and the fatty content was greatly reduced or lacking. In many cases an enlarged sebaceous gland was the only surviving part of the follicle. Although the subcutaneous layer in other grafts contained much fat (fig., *5*), many of the follicles were degenerating, thus providing evidence, as previously stated, that an abundance of fat does not insure great activity in the follicle.

SUMMARY

The best success in autotransplantation of skin in white rats resulted from using thin skin for the graft. Invariably, however, it failed to produce hair of good quality. Death of the hair bud, a dense corium and the absence of a fatty subcutaneous layer were all concerned in the lack of hair, but it is thought that a decline of activity of the hair follicle was the initial factor.

When skin from young donors was used, six homografts of thirty-two persisted and proved to be compatible for a year. Only one of these, however, produced normal hair. While the compatibility in these experiments may possibly be attributed to the fact that closely inbred animals were used, it is thought that the results are due mainly to the use of the partially differentiated skin from young rats.

In attempting to make homografts in mammals, it seems advisable to use tissue from young donors.

INCIDENCE OF DERMATOSES IN A STUDENT HEALTH SERVICE

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AND
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SAN FRANCISCO

Several observers (Pollitzer,[1] Lane[2] and Hazen[3]) have presented interesting statistical studies of the incidence of common diseases of the skin occurring among patients seen in private practice and at the dispensary. Goodman[4] has published a study covering almost 1,000,000 dermatologic diagnoses made in private and clinic practice. These figures include the findings of previous observers and may be considered as accurate owing to the large number of cases studied and the length of the period covered. The tabulated results in each case reveal a strikingly close correlation between the individual diagnoses and the numerical sequence of the survey despite the age and class of the patients.

The present study, utilizing the figures of, and attendance at, our health service, represents 5,354 new diagnoses made from January 1928 to January 1936. The student group constituting the material of the study was composed entirely of men students in good general health. The diagnoses were made by physicians in the health service, and in instances in which doubt existed the case was referred to the consulting dermatologist (Dr. Alderson) for final diagnosis. When possible, all the diagnoses were classified according to the provisional nomenclature of the American Dermatological Association. As might be expected in men of postadolescent age, tinea was by far the most prevalent cutaneous infection observed. This is in decided contrast to the results of the studies made by Pollitzer, in which tinea was eighth or ninth in the order of incidence of most common diseases of the skin observed from

From the Division of the Men Students Health Service, School of Hygiene and Physical Education, Stanford University.

1. Pollitzer, S.: J. Cutan. Dis. **32**:312, 1914; **36**:394, 1918.

2. Lane, C. G.: The General Practitioner and His Work, A. M. A. Bull. **24**:100 (March) 1929.

3. Hazen, H. H.: Syphilis and Skin Diseases in the American Negro, Arch. Dermat. & Syph. **31**:316 (March) 1935.

4. Goodman, H.: Statistics of Ten Most Common Skin Diseases, Based on Analysis of 973,090 Cases, Arch. Dermat. & Syph. **20**:186 (Aug.) 1929.

1873 to 1916 inclusive. A more recent publication [5] emphasized the increase in frequency that ringworm of the skin has assumed during the past years. Routine examinations disclosed some clinical phase of ringworm of the toes in approximately one half of the students attending the colleges of the United States. Legge, Bonar and Templeton [6] observed that the average incidence of ringworm of the feet in men students entering college was 51.3 per cent; by the end of the semester the incidence was 78.6 per cent, the difference representing an increase of 27 per cent. It is probably true that the gymnasium and athletic equipment play an important rôle in the dissemination and acquisition of the disease. Under the diagnosis of tinea (or ringworm) are of course included fungous infections of the toes, hands and groins (tinea cruris), ringworm of the body, tinea versicolor and ringworm of

TABLE 1.—*Ten Most Common Diseases of the Skin in Order of Their Frequency*

Goodman (Clinic and Private Practice)	Gilman (Student Health Service)	Alderson and Reich (Student Health Service)*	Percentage of Total Number of Diseases in Our Series
1. Eczema	1. Tinea	1. Tinea	24.7
2. Tinea	2. Acne vulgaris	2. Pyoderma	15.4
3. Acne vulgaris	3. Seborrhea	3. Dermatitis venenata	11.8
4. Scabies	4. Verruca	4. Seborrhea	4.4
5. Psoriasis	5. Pyoderma	5. Acne vulgaris	3.7
6. Seborrhea	6. Dermatitis venenata	6. Verruca	3.5
7. Impetigo	7. Eczema	7. Sebaceous cyst	2.9
8. Urticaria	8. Pityriasis rosea	8. Urticaria	2.8
9. Dermatitis venenata	9. Moles	9. Pediculosis pubis	1.8
10. Alopecia	10. Herpes zoster	10. Herpes simplex	1.6

* This tabulation excludes rubella, which would otherwise occupy fourth place in the list.

the nails. In this study, tinea constituted 24.7 per cent, or approximately one fourth, of all cutaneous diseases observed (table 1).

Pyoderma is a convenient term for almost all simple forms of pyogenic dermatitis and includes impetigo, folliculitis, furuncles and secondary infections. Pyoderma (impetigo) occurred with relative frequency and accounted for 15.4 per cent of all dermatoses. Holt and Howland [7] found impetigo to be the second most common cutaneous disease in their tabulation of dermatoses among infants and children.

The poison oak plant (Rhus toxicodendron) is a common inhabitant of the foot hills surrounding the campus and is responsible for the relatively high number of cases of dermatitis venenata. The eruptions are, as a rule, vesicular and accompanied by marked edema, although

5. Goodman, H.: Tinea: Second Most Prevalent Disease of the Skin, Arch. Dermat. & Syph. **23**:872 (May) 1931.

6. Legge, Robert T.; Bonar, Lee, and Templeton, H. J.: Incidence of Foot Ringworm Among College Students, J. A. M. A. **93**:170 (July 20) 1929.

7. Holt, L. Emmett, and Howland, John: Diseases of Infancy and Childhood, ed. 10, New York, D. Appleton-Century Company, 1933, p. 697.

occasionally purely erythematous eruptions or discrete bullae are observed. The onset is sudden, occurring a few hours or a few days after exposure, and the eruption involves the face, neck, wrists and hands. In many cases the condition is severe enough to necessitate hospitalization. Dermatitis venenata accounted for almost 12 per cent of the dermatoses seen and in our tabulation ranked third in frequency.

Surprising as this may seem, rubella occupied the fourth position in the list of the ten most common dermatoses in our tabulation. Although rubella belongs to the exanthems, the clinical diagnosis cannot be made without observing the character and distribution of the cutaneous manifestation of the disease. Only a half-dozen cases are normally observed during any school year, but in the spring of 1935 we observed 566 cases of rubella. However, the number of cases does not distort the relative order in the tabulation of the remaining dermatoses.

The typical picture of acne vulgaris, ranging from mildly seborrheic skin with a few comedones to the complete picture characterized by papules, pustules, cysts and nodules, is a distinct reflection of the age of the persons in the group observed. Although acne vulgaris constituted 3.7 per cent of the total number of conditions observed, this figure is probably a great deal smaller than that representing the actual incidence because fully one half of the student population has some form of the disorder. We have utilized only the records of students whose acne was severe enough to cause them to seek medical attention at the health service.

Seborrhea includes the usual well defined seborrheic dermatitis of the skin and scalp as well as the seborrheic eczemas and a small group of atypical seborrheids. The early seborrheic dermatitis of the scalp with concomitant alopecia is apparently common among men students and accounts for the relatively prominent position of seborrhea in the present tabulation. Verruca and sebaceous cysts were also prevalent owing perhaps to the students' willingness to avail themselves of the medical aid furnished by the health service. Stone and Abbey [8] have called attention to the importance of sebaceous cyst as a precancerous lesion and in their series reported a case in which the youngest patient was 21 years of age. Their review of the literature reveals that only Bishop [9] and Caylor [10] reported statistical data on the occurrence of malignant changes in sebaceous cysts. In the total of 718 cases observed by Stone and Abbey, Bishop and Caylor the average incidence of

8. Stone, M. J., and Abbey, E. A.: Sebaceous Cyst: Its Importance as a Precancerous Lesion, Arch. Dermat. & Syph. **31**:512 (April) 1935.

9. Bishop, E. J.: Epidermoid Carcinoma in Sebaceous Cysts, Ann. Surg. **93**:109, 1931.

10. Caylor, H. D.: Epithelioma in Sebaceous Cysts, Ann. Surg. **82**:164, 1925.

malignant changes amounted to 4.9 per cent. The fact remains that the older the patient, the greater the tendency toward such changes. No occurrence of this nature appeared in our series, but we encouraged the surgical removal of all sebaceous cysts when possible.

Urticaria was a symptom complex observed frequently enough to be included among the first ten most common dermatoses; the same is true of pediculosis pubis. If one were to exclude rubella and the

TABLE 2.—*Dermatoses Observed in the Men Students' Health Service of Stanford University from 1928 to 1936*

Acne rosacea	2	Lichen simplex chronicus	4
Acne vulgaris	200	Lipoma	2
Alopecia areata	9	Lupus erythematosus	1
Alopecia seborrhoeica	3	Miliaria rubra	1
Angioma	5	Milium	3
Balanitis	6	Molluscum contagiosum	4
Bromidrosis	1	Naevus pigmentosus	7
Carbunculus	5	Naevus vascularis	6
Cheilitis glandularis	1	Neurotic excoriations	2
Chloasma	1	Oedema angioneuroticum	9
Clavus	23	Onychomycosis	3
Dermatitis actinica	41	Papilloma	31
Dermatitis calorica	84	Parapsoriasis	1
Dermatitis herpetiformis	2	Paronychia	6
Dermatitis medicamentosa	37	Pediculosis corporis	3
Dermatitis seborrhoeica	201	Pediculosis pubis	97
Dermatitis traumatica	1	Perlèche	2
Dermatitis venenata (Rhus)	632	Pityriasis rosea	60
Dermatophytosis	834	Pityriasis versicolor	9
Eczema	20	Psoriasis	11
Eczema seborrhoeicum	34	Rubella	581
Eczematized tinea	12	Rubeola	29
Epithelioma benignum	2	Scabies	87
Erythema multiforme	2	Scarlatina	13
Erythema nodosum	1	Steatoma	160
Erythema toxicum	1	Sycosis vulgaris	15
Fibroma	8	Tatoo pigmentation	2
Folliculitis	166	Tinea barbae	1
Furunculus	398	Tinea capitis	2
Granuloma annulare	2	Tinea corporis et circinata	87
Granuloma pyogenicum	1	Tinea cruris	316
Herpes simplex	88	Trichorrhexis nodosa	1
Herpes zoster	42	Urticaria	148
Hyperhidrosis	9	Varicella	70
Ichthyosis	4	Verruca juvenilis	11
Impetigo	253	Verruca seborrhoeica	2
India ink pigmentation	2	Verruca plana	160
Infectious eczematoid dermatitis	8	Verruca plantaris	25
Intertrigo	16	Verruca vulgaris	2
Keloid	3	Vitiligo	2
Keratosis follicularis	2	Xanthoma	3
Keratosis pilaris	2	Xeroderma pigmentosum	3
Lichen planus	6	X-ray burn	2

cutaneous hypertrophies (warts, sebaceous cysts) from the tabulation, scabies and burns (dermatitis calorica) would be ninth and tenth on the list, respectively.

It is striking that eczema, although noted frequently in the study made by Pollitzer,[11] does not appear in our tabulation. This is due to the segregation of eczemas, such as chronic infectious eczematoid dermatitis, eczematized ringworm infection and seborrheic eczemas, under the respective headings of such dermatoses. Table 2 gives a

11. Pollitzer, cited by Caylor.[10]

complete alphabetical list of all dermatoses observed at the health service during the period of study.

The remaining cutaneous diseases usually regarded as of common occurrence were infrequently seen, owing perhaps to the age of the students. The present tabulation is in many respects similar to those previously reported and particularly to that of Gilman,[12] representing a cross-section of common diseases of the skin among college students, although in each list the position of the various diseases is somewhat changed. In this survey the first ten most common dermatoses represent 73.3 per cent of the total cutaneous diseases observed during a period of eight school years, and their incidence bears out the contention of many observers that they at least deserve a proportionate amount of attention and study by practitioners.

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12. Gilman, R. L.: Incidence of Skin Diseases in a Student Health Service, Am. J. M. Sc. **188**:268 (Aug.) 1934.

TRANSIENT DISCOLORATION OF THE NAILS DUE TO MERCURY BICHLORIDE

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In 1907 von Vörners [1] observed a peculiar grayness of the nails in patients who were receiving mercury as a part of antisyphilitic therapy. This discoloration of the nails occurred both in patients receiving mercury by inunction and in those taking mercury orally. A somewhat similar condition was observed in a patient who refused to take mercury by inunction and who was subsequently treated by inhalation of fumes from a 1:2,000 solution of mercury bichloride. More recently Heller [2] described the development in the nails of grayish black flecks which he ascribed to the use of mercuric sulfide in therapy.

Stühmer [3] described a black discoloration of the nails on exposure to sunlight after they had been treated locally with *"Sublimatspiritus"* (a preparation of mercury bichloride in alcohol) and also with *"Hg-Präzipitatsalbe"* (an ointment containing mercury). The conditions for which this treatment was instituted were chronic paronychia and allied disorders of the nails. In several patients the discoloration became so pronounced that treatment had to be discontinued. To establish definitely the nature of this discoloration Stühmer treated all the finger-nails of the left hand of one patient with *"Hg-Präzipitatsalbe"* and then exposed all the finger-nails of that hand except one to daylight and to direct sunlight. After about eight days all the exposed finger-nails had assumed a dark color, while the unexposed finger-nail retained its normal color.

When it was exposed to light, however, the previously undiscolored finger-nail too assumed the dark discoloration which the other finger-nails had previously presented. Apparently the depth of color depends on the amount of mercury present and also on the amount of exposure

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From the Department of Dermatology and Syphilology, University of Pennsylvania, School of Medicine, John H. Stokes, M.D., Director.

1. von Vörners: Onychia pigmentosa, München. med. Wchnschr. **54**:671 and 2283, 1907.

2. Heller, Julius: Bildung schwarzer Flecke auf den Nägeln durch unbeabsichtigte therapeutische Ausscheidung von Quecksilbersulfid, Dermat. Ztschr. **63**: 127 (Feb.) 1932.

3. Stühmer, A.: Schwarzfärbung der Nägel unter Lichteinwirkung nach Quecksilberimprägnation, Dermat. Wchnschr. **99**:1316 (Oct. 13) 1934.

to light. This peculiar discoloration could not be scraped off and extended throughout the thickness of the nail.

John [4] applied a 5 per cent ammoniated mercury ointment to the finger-nails of patients and obtained essentially the same results as did Stühmer. He found that the cone of rays in the visible spectrum was more active in causing the discoloration than the wavelengths of the ultraviolet spectrum. Chemically the agent causing the discoloration was proved to be mercury. The same discoloration developed in parings from finger-nails and in the horns of cattle treated in the aforementioned manner.

In the following case the clinical picture following the use of mercury bichloride was observed.

REPORT OF A CASE

R. R., a medical student aged 25, exhibited a grayish black discoloration of all the finger-nails of both hands. This discoloration was diffuse and was apparently distributed throughout the entire thickness of the nail, as it could not be scraped off. The discoloration extended from the base of the nail at the cuticle to the tip of the nail. The skin was uninvolved. The student stated that during the summer he had attended a six week course in bacteriology in which a 1:1,000 solution of mercury bichloride was used as a disinfectant and as a means of sterilizing all slides and glassware. His hands had been immersed in that solution for several minutes daily. After a few weeks he noticed that his finger-nails were becoming dark, and this discoloration became progressively deeper until the finger-nails were grayish black throughout. When he was first observed four weeks had elapsed since the last exposure to the mercuric solution. After an additional two months new nails, which appeared normal in every respect, had grown out and had replaced the discolored nails.

The solution of mercury bichloride which caused the discoloration was prepared as follows: 200 Gm. of mercury bichloride was dissolved in 800 cc. of commercial hydrochloric acid; 5 cc. of this solution was added to 1 liter of tap water, giving the ordinary 1:1,000 solution used by all students.

In a personal communication Dr. M. H. Soule,[5] director of the laboratory in which the student worked, stated that in a recent survey he had found that about 10 per cent of 151 students working in his laboratory and using a 1:1,000 solution of mercury bichloride exhibited discoloration of the finger-nails.

After this condition was observed it was proposed to reproduce the discoloration experimentally. Accordingly, I immersed four fingers of my left hand for fifteen minutes daily in a 1:1,000 solution of mercury bichloride prepared in the way described. To study the effect of visible light as compared with that of wavelengths of the ultraviolet spectrum, two finger-nails of the left and of the right hand were exposed for five minutes daily at a distance of 15 inches (38.1 cm.) to a radiation from an air-cooled quartz mercury vapor arc lamp. At the end of two

4. John, F.: Ueber die Schwarzfärbung tierischen und menschlicher Hornsubstanz nach Imprägnation mit Quecksilberlösungen und den Einfluss des Sonnenlichtes auf den Ablauf der ursächlichen chemischen Umsetzung, Dermat. Wchnschr. **100**:728 (June 29) 1935.

5. Soule, H. M.: Personal communication to the author.

weeks there had developed a progressive black discoloration of all the treated finger-nails while the untreated finger-nails remained normal. The finger-nails of the left hand exposed to ultraviolet radiation showed no more discoloration than those receiving visible light only. All the nails of the right hand which had not been exposed to the solution of mercury bichloride were unaffected. Further investigation was carried out to determine whether the dye (methylene blue) used in many of the proprietary preparations of mercury bichloride was in any way responsible for the changes in the color of the nails. No difference was noted between the effect of the colorless mercury bichloride and that of the chemical containing methylene blue. It was also found that when the nails were covered with rose water ointment or with flexible collodion before being exposed to the solution of mercury bichloride the discoloration did not appear. Contrary to the experience of John,[4] who found that tincture of iodine painted on the nails prevented the formation of coloration, my experience indicates that iodine increased the discoloration. The skin surrounding the nails was discolored in all cases, but the discoloration lasted only a short time owing to the rapid exfoliation of the epidermis. Parings of the nails treated with the solution of mercury bichloride and exposed to light became discolored, as did those observed by John.

The nails were treated with nitric acid neutralized and when hydrosulfuric acid was passed through the solution a black precipitate formed which was identified as mercuric sulfide. Microscopically the precipitation in the nails was seen to be uniformly dispersed throughout the entire thickness of the nail and appeared as small black granules.

It is thought that the solution of mercury bichloride coming in contact with the sulfur in the skin and nail and activated by light causes the formation of a black mercuric sulfide which is responsible for the discoloration.

SUMMARY

Discoloration of the nails due to contact with solution of mercury bichloride was observed and reproduced experimentally under controlled conditions.

The discoloration is diffusely dispersed throughout the entire thickness of the nail and the superficial layers of the skin.

That the discoloration is due to mercuric sulfide was established by chemical tests.

The discoloration is activated by rays of light.

As new nail tissue grows out, the new portion assumes its normal color.

TELANGIECTASIS MACULARIS ERUPTIVA PERSTANS

REPORT OF AN EARLY STAGE IN A CHILD

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The dermatologic syndrome consisting of a more or less widespread eruption of red telangiectatic macules in adults is of considerable, but not of the greatest, rarity. Generally this eruption has been described as occurring in adult obese women. Disorders of this nature have been recognized for a long time, and reports made in France as early as 1880 by Vidal,[1] and by many others were abstracted by Colcott Fox [2] in 1908 under the classification of "Essential Telangiectases in Plaques." To this group, it is believed, belongs the disease reported by Osler,[3] under the name "Telangiectasis Circumscripta Universalis." In this case, in addition to the telangiectatic lesions, there was also presented a cyanotic purplish appearance of the hands and feet resembling the asphyxia of Raynaud's disease.

Brocq,[4] who reported his observations on this condition in 1921, stated that it was not confined to adults or to obese women but occurred at any age, the lesions usually appearing on the limbs and later scattering over the trunk, the face rarely being affected. He described the individual lesions as varying in size from that of a pinhead to that of a dime and their surfaces as being slightly powdery or atrophic.

In 1930 Weber [5] presented a case and expressed the opinion that the condition represented a variety of urticaria pigmentosa. His belief was founded on the fact that on pressure with the diascope the red color disappeared but left a slight brownish pigmentation, on the observation that the lesions became redder and more elevated on friction and on positive results of tests for dermographism. Dermographism has often been reported as an associated finding. Also, it has been pointed out by Weber and Hellenschmied [6] that in the macular lesions of this disease the individual dilated blood vessels cannot be distinguished with the

1. Vidal, E.: Bull. et mém. Soc. méd. d. hôp. de Paris **17**:186, 1880.
2. Fox, T. Colcott: Brit. J. Dermat. **20**:145, 1908.
3. Osler, W.: Bull. Johns Hopkins Hosp. **18**:401, 1907.
4. Brocq, L.: Précis-atlas de pratique dermatologique, Paris, Gaston Doin, 1921, p. 1043.
5. Weber, F. P.: Proc. Roy. Soc. Med. **25**:665, 1932.
6. Weber, F. P., and Hellenschmied, R.: Brit. J. Dermat. **42**:374, 1930.

naked eye, even though they disappear under pressure with the diascope, this observation emphasizing the point that the basic lesion is a true hyperemic macule.

Barber [7] in 1932 reported a case of this condition and presented photomicrographs of histologic sections of one of the lesions. Examination of these sections revealed the presence of numerous mast cells. The presence of this type of cell in large numbers is of interest in view of the abundance of such cells in lesions of urticaria pigmentosa. Also

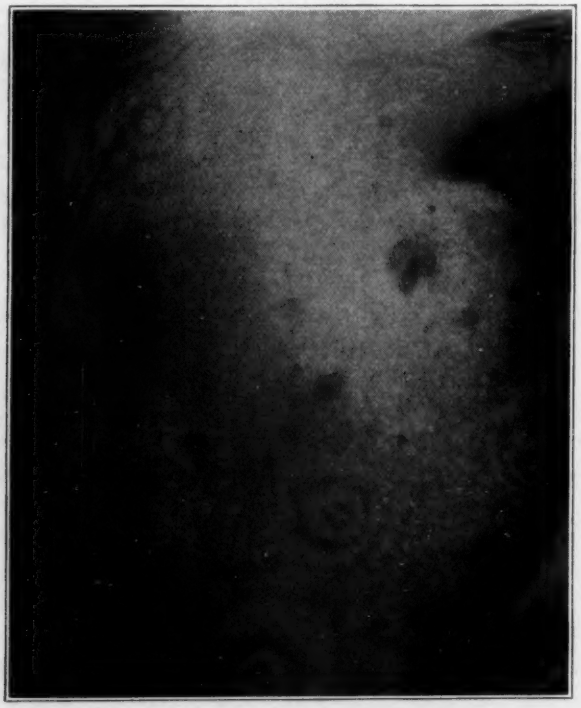

Fig. 1.—The right cheek, showing three macular telangiectatic lesions. The largest of these lesions was said by the patient to have been formed by the coalition of four small lesions.

it is of particular interest because of the previously noted contention that this condition is a variety of urticaria pigmentosa.

As to the etiology of the condition nothing is definitely known. The association of other forms of telangiectasis with hepatic, splenic and other forms of constitutional disease necessitates consideration of these factors. As the lesions tend to occur mostly on the nonexposed surfaces of the body, it is obvious that trauma should not be considered highly in the list of causative agents.

7. Barber, H. W.: Proc. Roy. Soc. Med. **25**:1029, 1932.

Perhaps there are encountered in every clinic cases of this disease that pass unnoticed or undiagnosed, for though the entity seems well recognized and described, it is certainly not well known. It seems probable that examples of minor manifestations of the condition are not uncommon.

REPORT OF CASE

W. G., an obese girl aged 10 years, was first seen in October 1935. The chief complaints were red spots on the face and limbs and a bluish color of the legs from the knees down. The patient and her mother stated that two years before red spots began to break out on the skin of the face and limbs. These spots came on in series of two or three at a time, not appearing all together, and some of them had spontaneously disappeared, leaving scars. Those which had disappeared were said to have done so in not less than from twelve to eighteen months. A few of the original lesions were said to be present, while numerous "younger" lesions were demonstrable. There never had been any pruritus. Examination revealed

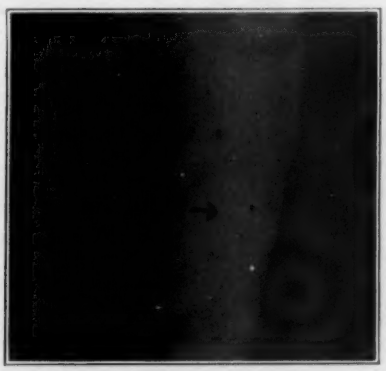

Fig. 2.—Posterior view of the lower portion of the legs. The arrow indicates a lesion with an areola or halo.

that scattered over the arms, legs, face and hands there were red macules which were not and did not become elevated on friction. These lesions disappeared on pressure with the diascope and showed no pigmentation. Tests for dermographism were only slightly positive. On the extensor surface of the right forearm there was a pea-sized white shiny depressed area of atrophy which was said by the patient and her mother to represent a scar from a lesion which had healed spontaneously.

On the face there were a number of pea-sized macular telangiectatic lesions and two larger similar lesions, one of which was nearly the size of a dime. The patient stated that the latter lesion had been formed by the coalescence of four small lesions.

The lower portion of the limbs, from shortly above the knees down to the toes, showed a light bluish purple discoloration, while the red telangiectatic lesions were seen to be surrounded by a salmon-pink collar or halo. These three colors formed a remarkable and striking contrast.

The family history gave little relevant information. The parents, brother or other relations of the patient had never been similarly affected. The younger brother of the patient had had hay fever and showed a more marked reaction to tests for dermographism than the patient.

General physical examination revealed that the child was moderately obese for her age. There was no palpable enlargement of the liver or spleen.

Hematologic examination showed 4,600,000 red cells, 5,600 white cells and 94 per cent hemoglobin. There were 280,000 platelets. The icterus index was 3.

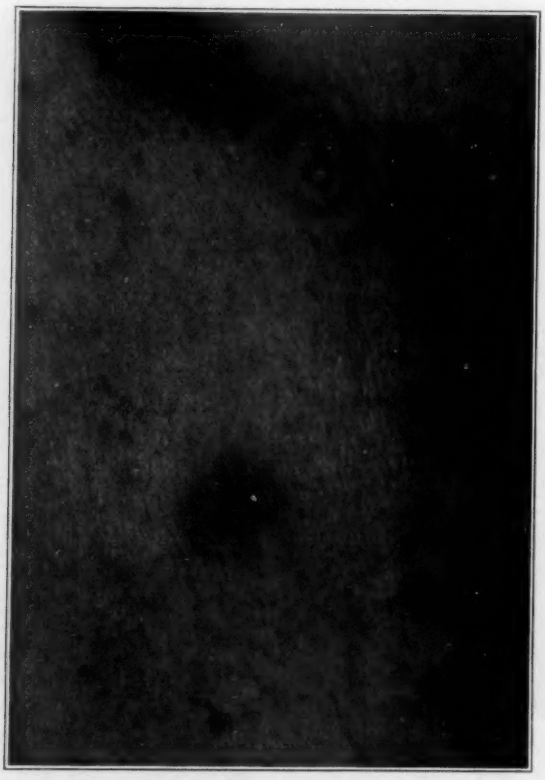

Fig. 3.—Telangiectatic macule on the right shoulder blade.

COMMENT

In considering and comparing the principal features of this disease with those of the other conditions as reported by Weber, Hellenschmied, Barber and others, it is to be noted that most instances of this condition have been observed in obese women, whereas this case occurred in an obese child. The obesity is considered by most of those reporting on the condition to be an indication pointing to endocrine etiology. Further, in this case the evidence toward a relationship to urticaria pigmentosa was not as strong as in many of the other cases reported. Another item

of particular interest in this instance is the history of spontaneous disappearance of the lesions. This occurrence has never been reported before. In fact, in none of the reports were there any notations as to the progress of the eruption or as to therapy, either suggested or applied. Owing to the spontaneity of the disappearance of the eruption, no therapy has been instituted and I am therefore unable to report the results of treatment. Also because of this spontaneous resolution of the lesions it would seem more advisable to classify this disease under the diagnosis "telangiectasis macularis eruptiva," omitting the term "perstans" from the designation originally given by Weber.

SUMMARY

A case of eruptive telangiectatic macules in a girl aged 10 years in which spontaneous healing occurred is reported.

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BLASTOMYCOSIS

REPORT OF A CASE WITH INVOLVEMENT OF THE SKIN AND BONES

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AND

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The term blastomycosis implies any condition caused by one of a group of vegetable yeastlike budding fungi known as Blastomyces. As commonly used in this country, however, it indicates a granulomatous condition which may affect the skin, the general system or both, as in the case reported here. Although reports of cases of blastomycosis appear not infrequently in the literature, the disease occurs so seldom in the experience of any one person or is so seldom observed in any one hospital, at least in this part of the country, as to make a case of it a matter of interest and a subject of difficulty in diagnosis. Thus, when the condition is first seen and before laboratory studies have been made, it is sometimes thought to be tuberculosis, syphilis, furunculosis, malignant degeneration or a fungous condition other than blastomycosis.

It is not the purpose of this paper to develop the history or to discuss the arbitrary classification of fungous diseases. This has been done by Jacobson,[1] Castellani,[2] Benham,[3] Rivas [4] and many others in textbooks, monographs and individual case reports. Jacobson's textbook "Fungus Diseases" is excellent, and it gives an extensive bibliography. A survey of the literature indicates that there is probably a group of allied organisms which produce clinical blastomycosis rather than one species, all belonging to the fungi imperfecti. Our case supports this

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From the Kilmer Pathological Laboratory and the Binghamton City Hospital.

Read before the New York State Association of Public Health Laboratories, Albany, N. Y., Nov. 1, 1935.

1. Jacobson, Harry P.: Fungous Diseases: A Clinico-Mycological Text, Springfield, Ill., Charles C. Thomas, Publisher, 1932.

2. Castellani, Aldo: Fungi and Fungous Diseases: Lecture I, Arch. Dermat. & Syph. **16**:383-425 (Oct.) 1927.

3. Benham, Rhoda W.: The Fungi of Blastomycosis and Coccidioidal Granuloma, Arch. Dermat. & Syph. **30**:385-400 (Sept.) 1934.

4. Rivas: Human Parasitology, Philadelphia, W. B. Saunders Company, 1920.

opinion in that the fungus recovered had characteristics varying somewhat from those usually described in the literature. Thus generally definite structures which are not globules of fat or granules but which are thought to be[5] spores can be demonstrated (fig. 1); however, budding could be observed only rarely in lesions in our case and, furthermore, lesions were produced in a guinea-pig.

REPORT OF CASE

W. K., a Negro aged 49, an unemployed laborer born in West Virginia, had never been in the tropics, had never been in a hospital before and had been in the state of New York for eight years or more. He was admitted to the hospital

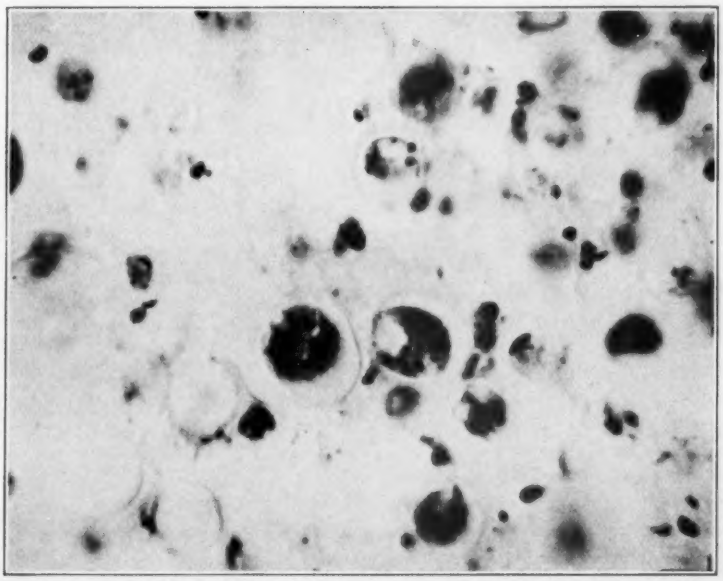

Fig. 1.—Section from lesion in mouse showing sporelike structures in large blastomyces; × 1150.

with a preliminary diagnosis of furunculosis. After a physical examination was made and the history was taken, a diagnosis of tuberculosis or mycosis was thought probable. The history indicated that seven months previously, after the patient had worked in a garage formerly a stable, a lesion said to be a boil developed on the calf of the leg. It failed to heal, and when it reached the size of a dollar it was lanced by a physician. At that time it was hard and not fluctuant; pus was obtained, but so far as is known it was not examined. Later many more

5. There is a difference of opinion among the authors on this point. Only one of us (V. W. B.) believes that these structures are probably spores. Endosporulation in blastomycosis has been described by Michelson[6] and others.

6. Michelson, I. D.: Blastomycosis, J. A. M. A. **91**:1871-1876 (Dec. 15) 1928.

lesions developed on the legs, feet, arms, hands, fingers, body, face and head. They would soften but did not come to a definite head, and they would not heal. Some would appear to heal with a shiny thin covering of epithelium, but the covering would crust over and beneath it a small pocket of pus could always be found. In addition to these lesions, when the patient entered the hospital he had numerous sinuses in the hands and feet, those in the feet being so painful that he was barely able to walk. The only definitely enlarged lymph nodes were in the inguinal region. There were no subjective or objective pulmonary or cardiac symptoms. The temperature, which was generally normal, reached 101 F. after subcutaneous therapy. Roentgen examination showed lesions in the bones of one hand and of both feet and in the left maxilla. No lesions could be found in the lungs. The complement fixation test for syphilis was negative. Blood counts showed slight leukopenia, with a relative increase in the number of lymphocytes. In August 1934 there were 6,550 white cells, 4,820,000 red cells and from 11 to 13 Gm. hemoglobin (Haden-Hausser method). The differential count showed 29 per cent polymorphonuclears, 64 per cent lymphocytes, 4 per cent large mononuclears, 1 per cent eosinophils and 2 per cent basophils. In November there were 6,850 white cells and 4,940,000 red cells, and the differential count showed 48 per cent polymorphonuclears, 51 per cent lymphocytes and 1 per cent mononuclears. The nonprotein nitrogen content of the blood was increased, amounting to 42.8 mg. per hundred cubic centimeters; the urea nitrogen content was 24.9 mg.; the sugar content, 101 mg.; the calcium content, 7.65 mg., and the phosphorus content, 3.5 mg. Urinalyses showed that a few hyaline casts were constantly present. No growth of bacteria or fungi was obtained in any of several blood cultures.

Histologic Examination.—A biopsy specimen from one of the lesions which showed no fluctuation and over which the skin was still intact when stained with hematoxylin and eosin showed a typical granuloma such as is described in the literature. The epidermis was markedly hypertrophied, and the rete pegs were decreased in number but were much thickened and infolded, so that a cross-section showed many islands of corium enclosed by squamous cells. These islands contained minute chronic abscesses but few fungi. The major portion of the granuloma spread parallel to the surface deep in the corium. In the older lesions the granuloma was made up of a central portion of pus composed of necrotizing tissue and polymorphonuclear leukocytes in which were mingled many giant cells which showed no tendency to predominate around the periphery. In fact, they were larger and more numerous in the center. The lesions while suggesting tuberculosis did not have the structure of a classic tubercle. Typical caseation with a zone of epithelioid cells was not present. Some nodules had a condensation of surrounding tissue evidently due to pressure from expansion which with fibrous tissue proliferation tended to encapsulate them. Other nodules showed no encapsulation. Age did not appear to play a part in this process. A zone of plasma cells intermingled with lymphocytes and eosinophils surrounded the central portion and tended to infiltrate the capsule if there was one and to spread out into the adjacent tissue. In this respect the lesions differed somewhat from those described by Gaspar.[7] He observed leukocytes and plasma cells in the outer zone with few lymphocytes. Doubly contoured cells, averaging from 10 to 15 microns in diameter, with a granular cytoplasm were noted in giant cells (fig. 2) and occurred free in the tissue spaces. Little budding could be observed; intracellular structures suggesting endospores were present; there was no forma-

7. Gaspar, Istvan: Blastomycotic Meningo-Encephalitis: Report of a Case, Arch. Neurol. & Psychiat. **22**:475-486 (Sept.) 1929.

tion of mycelia, and the organisms were so few that they might easily be overlooked. The structures designated as spores were usually perfectly round, had a definite wall, were not doubly contoured and stained solidly blue with hematoxylin. From 6 to 12 or more were usually observed in large cells in which the walls were becoming less refractile. No ruptured cells could be seen.

Results of Cultures.—Material collected from the lesions on cotton swabs or aspirated aseptically with a needle was inoculated on blood agar, on Sabouraud's agar, on plain beef infusion agar and in beef infusion broth; all the mediums except the broth showed rather sparse growth in from three days to a week or more. Blood agar and plain beef infusion agar provided the best growth at 37 C., but growth was also obtained on other mediums, both at 37 C. and at room temperature. Transfers from blood agar grew luxuriantly on plain beef infusion

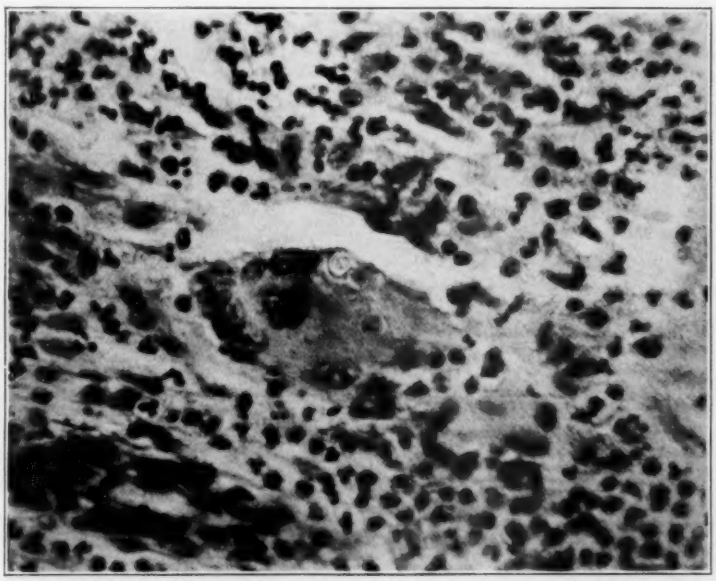

Fig. 2.—Giant cell containing blastomyces in cutaneous lesion of patient; × 500.

agar. Growth appeared at 37 C. on blood agar in three days or more as fine raised rough white colonies producing methemoglobin. At room temperature the colonies acquired aerial hyphae which grew perpendicular to the medium as a tuft in the center and lay flat on the surface at the periphery. As the colonies became older they turned brown. Cultures grown on solid mediums at room temperature showed both budding and mycelial forms. The mycelia were branched and septate, and in some films arthrospores and conidia could be demonstrated. On the other hand, cultures grown at 37 C. showed typical budding forms and atypical peculiar flat polygonal cells which stained irregularly with any stain. Plain beef infusion broth yielded no growth when inoculated with pus, but good growth was obtained in both plain and dextrose broth inoculated with an old culture. Single sugars, including galactose, dextrose, lactose, saccharose, maltose, mannitol, levulose, rhamnose, inulin, xylose, dextrin and litmus milk, showed no acid or gas in eleven days. The fungus grew in broth at room temperature as

cotton-like tangled masses of mycelia scattered through the mediums if not disturbed, and microscopically it showed budding forms and mycelia with little branching and little or no septation (fig. 3). Lateral and terminal conidia were present but appeared to be loosely attached, so that they broke off easily when handled. At incubator temperature the fungi in broth showed many bizarre shapes, such as elongated budding and attempts to form hyphae.

Microscopic examination of moist preparations made from pus in sodium hydroxide and films of pus stained with methylene blue and by Wright's and Gram's methods showed no structures which could be definitely identified as fungi, although occasionally a cell appeared to be budding. The scarcity of fungi in the pus was borne out by sparse growth on culture mediums usually found in the area of the first streaks of the inoculation.

Fig. 3.—Mycelia with spores and budding forms. Broth culture grown at room temperature; × 415.

Results of Inoculation of Animals.—Laboratory animals, including mice, rats, guinea-pigs and rabbits, were inoculated intraperitoneally, subcutaneously or intravenously or by all methods. Mice were found to exhibit the most satisfactory results; in them profuse lesions developed within five weeks, but the animals did not die until ten weeks after inoculation. At autopsy the infection was seen to be widespread, having produced granulomatous lesions in all or in several of the parenchymatous organs—in the brain, meninges, peritoneum, lungs and testicles. Microscopically the granulomas in animals differed from those in the patient in that they were more acute and that no giant cells were present. Large masses of doubly contoured cells in all stages of preservation were present, some of them reaching a diameter of 25 microns. Budding and figure of eight forms were easily detected (fig. 4), and cells showing endospores identical with those observed in the cutaneous lesions could be demonstrated. In only one instance was such a

cell seen to be ruptured and pouring out the spores as is characteristic of coccidiosis. The spores were often arranged at regular intervals in circular form near the periphery and numbered twelve or more.

Definite lesions containing budding and nonbudding forms were observed in the meninges and brain of a rabbit nine weeks after inoculation. The lungs showed hemorrhagic pneumonia and peribronchial abscesses in which fungi could not be identified.

A rat and a guinea-pig proved most refractory to infection. The rat although living ten months after inoculation was in poor condition. It was inoculated again but failed to survive the anesthesia. Autopsy revealed an old chronic pneumonia with a superimposed fresh pneumonia. No evidence of fungous infection could be discovered in any of the tissues. A guinea-pig inoculated intraperitoneally with

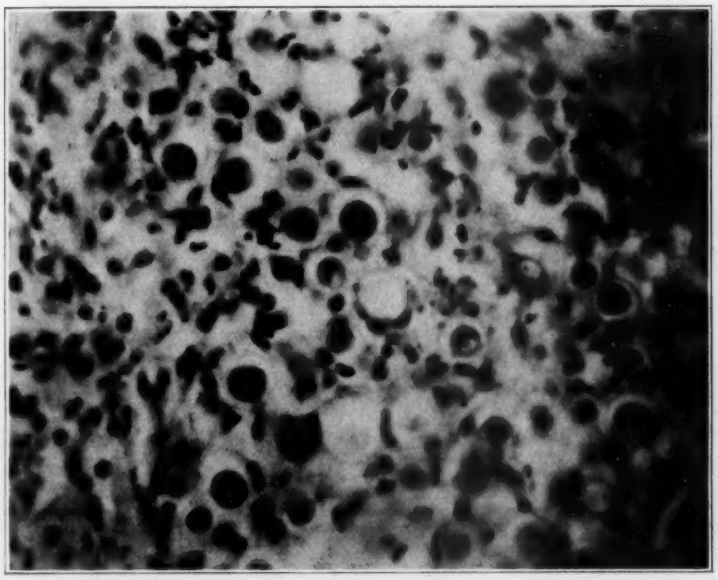

Fig. 4.—Budding and figure of eight forms in lesion in liver of a mouse; × 530.

pus was healthy ten weeks later. It was killed, and at autopsy the only gross lesion noted was one small area of perisplenitis. Microscopic examination showed this to be granulomatous, giant cells and few organisms which could be observed only after prolonged search being present. The lungs and kidneys showed what were believed to be early mycotic lesions composed of small foci of lymphocytes and endothelial cells and occasionally a few plasma cells. These areas were not walled off by a capsule, and no fungi such as described by Michelson could be observed in them.

Treatment and Course.—The patient was treated at various times with neoarsphenamine intravenously, 75 drops of potassium iodide in milk by mouth three times a day and antimony and potassium tartrate intravenously. In addition, cod liver oil, iron, quinine and strychnine were administered; physical therapy and roentgen therapy were given; 5 per cent iodine ointment was applied to the lesions, and finally 3 cc. of colloidal copper was given intramuscularly every five days until

20 doses had been administered. The condition did not change until colloidal copper was given. In fact, new lesions continued to appear, and the pain and soreness necessitated occasional administration of morphine. After treatment with colloidal copper was started the lesions began to heal, and new ones did not develop. At the time of discharge, in April 1935, eight months after admission, the patient felt generally better; he had regained his weight and was able to walk with greater ease with crutches; these were later discarded. There was still, however, some soreness in the feet, particularly after he had walked too much, and a sinus in the heel was still open. Ten months after his discharge the patient had continued to gain weight and all the lesions except the sinus in the heel had healed.

SUMMARY

A case of blastomycosis of the skin and bones is reported and a mycologic description is presented.

The fungus corresponded in general to that usually described in the literature but differed from it in that structures thought to be spores were formed, budding was scarce in the cutaneous lesions, and lesions were produced in a guinea-pig.

The patient's condition improved markedly when he was treated with colloidal copper.

THE GLOMUS TUMOR

REPORT OF TWO CASES WITH HISTOLOGIC OBSERVATIONS

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In considering the painful subcutaneous and subungual tumors of the extremities one must keep in mind the glomus tumor, which is homologous to the glomus coccygeum of Luska. Because of its resemblance to hemangioma, angiosarcoma and neurofibroma many of these tumors have in all probability escaped recognition.

Masson in 1924 described a vascular tumor made up of a tangled mass of arterioles the walls of which had epithelioid and smooth muscle cells peculiarly arranged about the lumen. He further noted within the tumor large numbers of unmyelinated nerves which were directly continuous with the cytoplasm of the epithelioid cells. To this structure he gave the name "neuromyo-arterial glomus." Four years later Grieg [1] reported three cases and reviewed twenty-three from the English and Scottish literature. Since then Stratmann,[2] Mason and Weil,[3] Bailey,[4] Stout [5] and Kufler [6] have thoroughly described the condition. Stout in 1935 reported eleven cases and reviewed sixty-two.

The glomus tumor is an overgrowth of a specific arteriovenous anastomosis, the normal glomus, which is widely distributed over the cutaneous surface but is found most frequently on the extremities and in the nail beds. Characteristically, the media of the vessels making up the tumor is composed of epithelioid muscle cells known as glomus cells. In referring to the glomus of Luska, Schumaker described these cells as being derived from embryonal cells which normally differentiate into smooth muscle. Many writers have described unmyelinated nerve fibers in direct continuation with the cytoplasmic processes of these cells. In the neighborhood of the tumor Masson observed large corpuscles of Vater and Pacini, which he believed were responsible for the pain.

From the Department of Dermatological Pathology, Cook County Hospital, Dr. Richard H. Jaffé, Director of Laboratories.

1. Grieg, D. M.: Edinburgh M. J. **35**:565, 1928.
2. Stratmann, A.: Dermat. Ztschr. **67**:129, 1933.
3. Mason, M. L., and Weil, A.: Surg., Gynec. & Obst. **58**:807 (May) 1934.
4. Bailey, O. T.: Am. J. Path. **11**:915 (Nov.) 1935.
5. Stout, A.: Am. J. Cancer **24**:255 (June) 1935.
6. Kufler, W.: Frankfurt. Ztschr. f. Path. **49**:236, 1936.

The function of the glomus has been discussed, especially by Popoff,[7] who suggested that it serves to regulate the arteriovenous circulation and the interstitial pressure as well as the body temperature.

So typical are the observations in a given case that an accurate clinical and pathologic diagnosis can usually be made. This is best illustrated by the following two case reports.

REPORT OF CASES

CASE 1.—Mr. A. R., aged 60, was brought to the hospital by his relatives. A brief examination revealed a profusely bleeding tumor on the left leg. A tourniquet was applied, and the patient was rushed to a surgical ward, where further observation revealed a deep blue pecan-sized nodule arising sharply from the normal skin and partially torn from the anterior aspect of the upper third of the left leg. The mass bled profusely and was intensely painful when manipulated. The surrounding area was infiltrated with procaine hydrochloride, and the tumor was excised. The patient was able to walk about immediately after the operation.

When he was questioned later about the tumor he gave the following history: Thirty years previously he had fallen through a hole in a wooden sidewalk and bruised his left leg just below the knee. The leg at that site was tender and presented the color changes of a bruise. He observed several days later that a relatively painless reddish blue pea-sized nodule had developed at the point of injury. Two years later he began to experience a throbbing pain in the nodule during damp or cold weather. At about that time he noted that whenever the mass was traumatized or touched a sharp radiating pain extending up and down the anterior surface of the leg and thigh was produced. The pain became progressively worse, causing the patient to walk stiff legged in order to avoid bending the knee. He improvised a protective bandage, much like a giant corn pad, which he tied about his leg with coarse twine and thus shielded the tumor from the overlying trousers. Thirty years after he sustained the first trauma, another fall caused the tie of the protective bandage to cut into the tumor, making it bleed so profusely that the patient was brought to the hospital.

The histologic interpretation at the time was that of a perithelioma. Labeled as such, the specimen was filed in the collection of the department of surgical pathology. The publication of the articles by Stratmann and Mason and Weil caused renewed interest to be taken in the case. The old paraffin block was recut, and sections were stained with hemalum and eosin and according to the methods of Van Gieson, Weigert (elastica stain), Mallory (phosphotungstic-hematoxylin stain), Heidenhain (azan) and Bielschowsky (silver stain).

Microscopically, the sections of skin revealed a vascular tumor involving the entire stratum reticulare. In places a capsule of coarse collagenous fibers was noticed demarcating the tumor from the surrounding tissue. The vessels of the tumor showed variations in size and shape and in thickness of their walls. The endothelial layer in some places was flattened; in others it was cuboidal and swollen. Lining the endothelial layer was a zone of collagenous fibers which varied

7. Popoff, N. W.: Digital Vascular System, with Reference to the State of Glomus in Inflammation, Arteriosclerotic Gangrene, Diabetic Gangrene, Thrombo-Angiitis Obliterans and Supernumerary Digits in Man, Arch. Path. **18**:295 (Sept.) 1934.

from a fine strand seen only with special stains to a dense collar of fibrous tissue. About this area were peculiar large epithelioid cells which were arranged in somewhat orderly rows, two or more in number (fig. 1). The large nucleus of the cells contained a fine deeply staining chromatin material with occasionally two basophilic

Fig. 1 (case 1).—Photomicrograph of section stained with the azan stain, × 300.

nucleoli (fig. 2). The cystoplasm in most areas was clear and stained faintly with eosin, while in places cytoplasmic projections filled with basophilic granules were observed at each end of the cell. In the section stained by the Bielschowsky method branched fibers of varying thickness could be seen between the cells (fig. 3).

About the vessels was a pale-staining homogeneous tissue which contained fibroblasts and isolated glomus cells with an occasional small bundle of nerve fibers. Here and there a nerve was seen entering the perivascular coats of epithelioid cells. The argentophilic material between the cells, however, impressed me as reticulum rather than as nerve fibrils.

Fig. 2 (case 1).—Photomicrograph of section stained with Mallory's phosphotungstic acid-hematoxylin stain, × 600.

Outside the tumor myelinated nerve fibers and occasionally pacinian corpuscles were observed.

Case 2.—Mr. T. K., aged 64, was admitted to a medical ward because of arteriosclerotic heart disease with failure. While he was in the ward he com-

plained of a painful nodule on the right arm. Examination revealed a dusky slate-blue nodule 7 by 10 by 5 mm. arising from normal skin on the medial aspect of the upper portion of the right arm at the junction of the middle and the lower third (fig. 4). The nodule was extremely tender; pressure or trauma produced trigger-like pain up and down the arm and forearm, causing the patient to recoil.

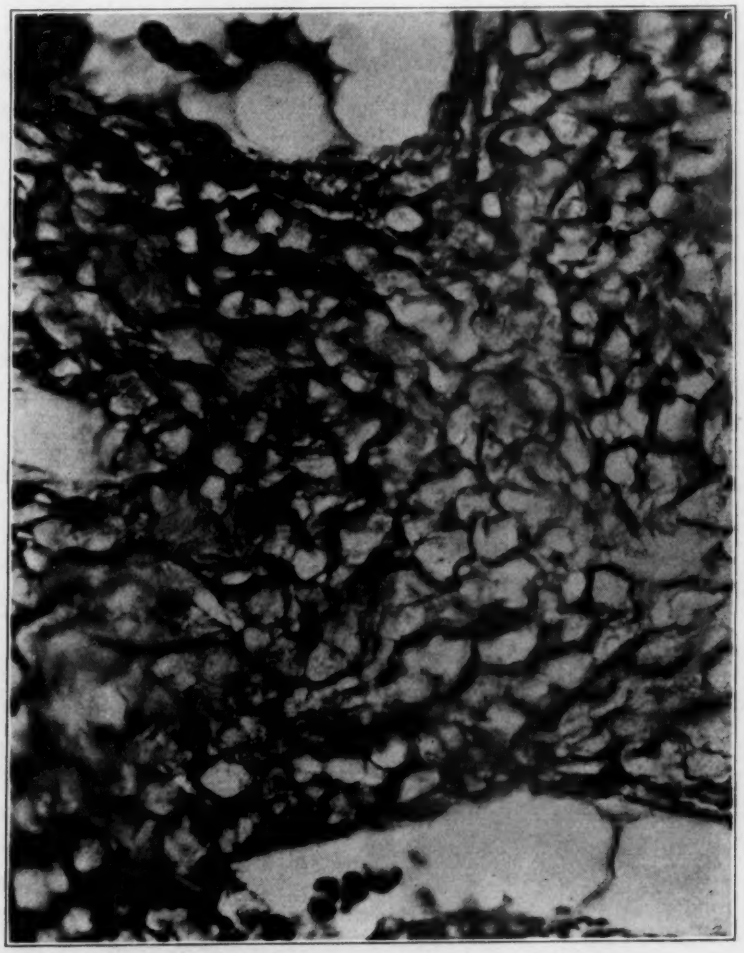

Fig. 3 (case 1).—Photomicrograph of section stained with Bielschowsky's silver impregnation, × 1,000.

At times when he was resting he felt a throbbing pain in the tumor; this was relieved by a series of forceful thrusts of the forearm. The patient further related that after he indulged in a heavy alcoholic bout the tumor would be more painful. Because of the pain he would sleep holding his right forearm with his left hand in order to keep the arm from pressing against the thoracic wall. He stated that

the tumor had been present as long as he could remember but that it first became painful about ten years previously, after he sustained a fracture of his right arm, which was treated with traction. Within the past two or three years the pain had become progressively worse. On the basis of these observations and of the history a preoperative diagnosis of glomus tumor was made.

The region about the tumor was infiltrated with procaine hydrochloride, and an elliptic incision was made. In the hypoderm, at the base of the tumor, a nerve 2 mm. in diameter was easily dissected. Material for biopsy was fixed in Zenker's fluid and solution of formaldehyde. Paraffin sections were made and stained by the methods listed in case 1.

The microscopic examination of the tumor revealed it to be vascular and to occupy the entire thickness of the stratum reticulare. Incompletely surrounding the tumor were a few scant collagen fibers which in places blended into the stroma of the tumor.

Fig. 4 (case 2).—Photograph of nodule on the right arm.

The blood vessels were of varied size, shape and structure. Along the border of the tumor the vessels were large and dilated, simulating at first glance the picture of a cavernous hemangioma. The endothelium in most areas was flattened; however, zones of cuboidal cells were frequently noted. The other vessels showed several layers of the epithelial cells as described in case 1. The thickness of this layer varied, as did the amount of collagenous fiber between the endothelium and the layer of epithelial cells. In addition to these vessels there were several small arteries with thick walls (fig. 5).

The glomus cell is a large ovoid, or round, cell; the nucleus, which is centrally placed, is of uniform size and has a fine stippled chromatin material which stains deeply. Occasionally, two basophilic nucleoli can be made out. The cytoplasm in most parts is clear and faintly acidophilic with a cell membrane that is sharply outlined and separated from its neighbor by fine argentophil fibers. In places, granular stippling and cytoplasmic projections can be made out, giving the cell a spindle-shaped appearance.

In between the vessels was a pale staining homogeneous substance which took the fuchsin stains poorly. Throughout this substance were scattered glomus cells and single fibroblasts and nerve fibers.

Fig. 5 (case 2).—Photomicrograph of section stained with hemalum eosin, × 150.

There was practically a complete absence of elastic fibers in the tumor. A few curled shreds were seen about some of the larger vessels, while in the papillary layer of the cutis the normal amount was present. Surrounding the tumor numerous pacinian corpuscles were demonstrated, and in one area, three, in close proximity, were in evidence. Numerous nerve fibers were present in this area.

COMMENT

The two cases reported illustrate the type of neurovascular tumor that has recently attracted so much attention. In case 1 four years has elapsed since the tumor was removed. Although there is not sufficient clinical evidence to suggest a recurrence, deep pressure over the scar causes severe radiating pain up and down the anterior aspect of the leg. In the literature, the benign character of these tumors has been stressed. Recently an instance of a nonmetastasizing malignant tumor of the small pelvis derived from the glomus coccygeum was reported by Kufler, who expressed the opinion that since the glomus coccygeum is a homalog of the normal glomus all tumors arising therefrom are glomus tumors. I have been unable to find other reports of malignant changes. The history of a benign, slow-growing, painful subcutaneous nodule with or without associated vasomotor changes of the extremities should suggest a glomus tumor. The histologic picture will readily confirm the diagnosis. Simple excision of the tumor leads to immediate alleviation of the pain.

SUMMARY

Two cases of typical glomus tumor (glomangioma) in men have been described. The history suggested relations to a preceding trauma. In both cases trigger-like pain present on manipulation was the outstanding symptoms. This was promptly relieved by the excision of the tumor.

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CALCINOSIS WITH SCLERODERMA

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Calcinosis and scleroderma occurring alone are relatively common diseases, but the occurrence of both in the same patient is comparatively rare, only about fifty cases having been reported in the literature. Because of this rarity we feel that the following report is justified.

INCIDENCE

At no age are persons exempt. Naegli estimated that scleroderma constitutes from 1 to 1.5 per cent of all dermatologic conditions. Weidman,[1] Dolinšek and Ermenc [2] and Foster and Giustinian [3] reported cases of scleroderma in the new-born. Craig and Lyall [4] reported calcinosis; Hein [5] and Turpin [6] reported scleroderma, and Lereboullet and Lelong [7] and von Bernuth [8] reported both diseases together in children. Garcin and his associates,[9] Costello,[10] Kessler [11] and Milne [12] reported cases in patients ranging in age from 18 to 65.

From the Medical Service of the Cumberland Hospital, Dr. Henry Joachim, Director.

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2. Dolinšek, R., and Ermenc, J.: Wien. klin. Wchnschr. **38**:957 (Aug. 27) 1925.
3. Foster, E., and Giustinian, V.: Semana méd. **2**:821 (Oct. 1) 1925.
4. Craig, J., and Lyall, A.: Brit. J. Child. Dis. **28**:29 (Jan.-March) 1931.
5. Hein, B. J.: Calcinosis Universalis, Arch. Surg. **26**:389 (March) 1933.
6. Turpin, R.: Presse méd. **42**:1561 (Oct. 6) 1934.
7. Lereboullet, P., and Lelong, M.: Bull. Soc. de pédiat. de Paris **28**:53 (Feb.) 1930.
8. von Bernuth, F.: Ztschr. f. Kinderh. **54**:103, 1932.
9. Garcin, R.; Bertrand, I.; Laudat, M., and Cachin, C.: Bull. et mém. Soc. méd. d. hôp. de Paris **47**:1036 (June 22) 1931.
10. Costello, M. J.: New York State J. Med. **35**:1266 (Dec. 15) 1935.
11. Kessler, J. C.: J. Iowa M. Soc. **21**:249 (May) 1931.
12. Milne, I. R.: Brit. M. J. **1**:1072 (May 25) 1935.

SYMPTOMS

Scleroderma is a chronic, localized or diffuse induration, stiffening and rigidity of the skin, usually associated with pigmentation and atrophy. The types of diffuse scleroderma are the arthritic, in which pain, swelling, stiffness of the joints and weakness are present, and the vascular, varying in symptomatology from cyanosis on exposure to cold to a well developed Raynaud syndrome with marked tendency to trophic changes, ulceration and gangrene of the terminal phalanges.

Calcinosis manifests itself by characteristic small, hard, subcutaneous or interstitial nodules which have a tendency to open spontaneously on the surface and discharge the calcific deposits and a greasy white pus; the nodules are followed by a slowly healing ulcer. The deposits consist almost entirely of calcium salts, carbonates and phosphates, in varying proportions.

The simultaneous presence of scleroderma and calcinosis is sometimes referred to (especially in the foreign literature) as the Thibierge-Weissenbach syndrome.[13]

PATHOGENESIS

Much has been written on the pathogenesis of scleroderma and calcinosis. In spite of the ever increasing volume of literature on the subject, one is confused by the increasing complexity of the theoretical considerations of the pathogenesis of the Thibierge-Weissenbach syndrome. However, when one considers carefully the theories of pathogenesis proposed by the various writers on the subject, one is impressed by the fact that many of them are interrelated. For the sake of clarity and to avoid repetition, we shall list the theoretical sources separately without pointing out their frequent interrelationships, since these will become readily apparent.

The hypothetic sources to be considered are: (1) trauma and exposure; (2) angiotrophoneurosis; (3) primary disturbance of connective tissue, local or general; (4) hyperparathyroidism; (5) disturbance of the calcium-phosphorus metabolism; (6) endocrinopathy (other than hyperparathyroidism); (7) physicochemical changes, local or general.

1. *Trauma and Exposure.*—Follman and Balló [14] reported that multiple fractures, injuries to the thighs and trauma to the jaw have been followed by scleroderma. Exposure to cold is often a causal factor. Heat also may be a cause, although instances in which it caused the condition are extremely rare. Shelley [15] and Milian, Périn and Horo-

13. Thibierge, G., and Weissenbach, A. J.: (*a*) Bull. et mém. Soc. méd. d. hôp. de Paris **30**:10-14, 1910; (*b*) Ann. de dermat. et syph. **2**:129, 1911.

14. Follman, J., and Balló, B.: Dermat. Wchnschr. **97**:1779 (Dec. 23) 1933.

15. Shelley, H. J.: Calcification in Subcutaneous Tissues: Report of a Case Associated with Chronic Atrophic Arthritis, Arch. Surg. **23**:513 (Sept.) 1931.

witz [16] pointed out in their cases that calcific deposits were found over the tuberosities of the ischia, obvious sites of frequent trauma. Shelley's patient also showed a deposit in the forearm after sustaining a severe blow.

2. *Angiotrophoneurosis.*—This must be considered of etiologic significance because of the rather frequent association of scleroderma with Raynaud's disease and because, according to some writers, there is a common background for both conditions.

Brown, O'Leary and Adson [17] found that one third of patients afflicted with scleroderma have suffered from vasospastic phenomena simulating Raynaud's syndrome. These patients suffer a diminution in the supply of blood to the extremities because of the continuous vasospasm. The spasm and the cyanosis are relieved temporarily by heat, by vaccines and by general, spinal and local anesthesia, much as are patients with Raynaud's syndrome. The changes are most pronounced in uncovered parts of the body, which suggest that cold reflexly accentuates vasomotor spasm. The changes in scleroderma simulate those due to a plaster cast too tightly applied: cyanosis, swelling, pain, atrophy and contractural deformities. Brown, O'Leary and Adson are convinced that sympathetic hypertonus of the arterioles is the primary—perhaps the major—disturbance, contrary to their own earlier conclusions [18] that capillary changes did not precede, but rather followed, the pathologic hypertrophy. Follman and Balló [14] and Thibierge and Weissenbach [13] expressed the same opinion. Dinkler,[19] Gaucher,[20] Crocker,[21] Newman,[22] and O'Leary and Nomland [23] stated that the primary lesion was in the walls of the blood vessels. Rake,[24] Herzog,[25] Lewen and Heller [26] and Kuré, Yamagata and Kaneko [27] expressed the belief that

16. Milian, G.; Périn, L., and Horowitz: Bull. Soc. franç. de dermat. et syph. **37**:475 (April) 1930.

17. Brown, G. E.; O'Leary, P. A., and Adson, A. W.: Ann. Int. Med. **4**:555 (Dec.) 1930.

18. Brown, G. E., and O'Leary, P. A.: Skin Capillaries in Scleroderma, Arch. Int. Med. **36**:73 (July) 1925.

19. Dinkler, M.: Deutsches Arch. f. klin. Med. **48**:514, 1891.

20. Gaucher, E.: Maladies de la peau, Paris, J. B. Baillière & fils, 1909.

21. Crocker, H. R.: Diseases of the Skin: Their Description, Pathology, Diagnosis, and Treatment, Philadelphia, P. Blakiston's Son & Co., 1908, p. 618.

22. Newman, Mraček, F.: Handbuch der Hautkrankheiten, Vienna, A. Hölder, 1904, vol. 3.

23. O'Leary, P. A., and Nomland, R.: Am. J. M. Sc. **180**:95 (July) 1930.

24. Rake, G.: Bull. Johns Hopkins Hosp. **48**:212 (April) 1931.

25. Herzog, cited by Kaufmann, E.: Pathology for Students and Practitioners, Philadelphia, P. Blakiston's Son & Co., 1929, p. 2170.

26. Lewen, G., and Heller, J.: Die Sklerodermie, Berlin, A. Hirschwald, 1895.

27. Kuré, K.; Yamagata, K., and Kaneko, Y.: Klin. Wchnschr. **11**:1415 (Aug. 20) 1932.

changes are present in the ganglions of the sympathetic and parasympathetic systems.

Puddu [28] reported the case of a woman who had Raynaud's disease at the age of 26. About twelve years later scleroderma developed. Parathyroidectomy was performed, and her condition improved. That author expressed the belief that there is a possible relationship between angiospastic states and hyperparathyroidism and scleroderma.

3. *Primary Disturbance of Connective Tissue, Local or General.*—Von Bernuth [8] assigned a common pathogenic background to scleroderma and calcinosis, namely, a primarily congenital or a secondarily conditioned change of the entire connective tissue apparatus, in the sense of a systemic disease, under the influence of the endocrine glands or of the vegetative nervous system. Gilbert and Pollet [29] expressed the belief that calcinosis and scleroderma are due to a general metabolic disturbance in the tissue.

Barr [30] contended that calcium is deposited in dead or dying tissue and expressed the belief that in most instances abnormal calcification is due to a decreased blood supply and is preceded by hyalin-like changes. Weidman and Schaffer [31] claimed that calcinosis is due to a disturbance of fat in the epidermal cells, fatty degeneration occurring first and being followed by deposition of calcium salts. Tisdall and Erb [32] expressed the opinion that calcinosis is a local rather than a general metabolic change, some local factor determining the deposition of calcium salts. Thibierge and Weissenbach [33] stated that calcinosis and scleroderma evolve together clinically from sclerosis of connective tissue. Histologically the calcification is seen to be produced from hyaline or colloid degeneration of fibrous tissue. The most important causes of this change, according to them, are humoral alterations and metabolic disturbances.

4. *Hyperparathyroidism.*—The parathyroids have been considered in this connection more often than any other agent because of the rôle they are known to play in calcium metabolism and of their possible connection with the pathologic calcium deposits in calcinosis.

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28. Puddu, V.: Policlinico (sez. prat.) **41**:1801 (Nov. 19) 1934.

29. Gilbert, A., and Pollet, L.: Presse méd. **44**:88 (Jan. 23) 1936.

30. Barr, D. P.: J. Missouri M. A. **27**:593 (Dec.) 1930.

31. Weidman, F. D., and Schaffer, L. W.: Calcification of the Skin, Including Epiderm, in Connection with Extensive Bone Resorption, Arch. Dermat. & Syph. **14**:503 (Nov.) 1926.

32. Tisdall, F. F., and Erb, I. H.: Unusual Calcareous Deposits, Am. J. Dis. Child. **27**:28 (Jan.) 1924.

33. Thibierge, G., and Weissenbach, R. J.: Paris méd. **1**:85 (Jan. 23) 1926.

Leriche [34] expressed the opinion that under the influence of hyperparathyroidism the skeleton loses calcium constantly and abnormally. Part of this free calcium is accumulated in the skin. He expressed the belief, therefore, that scleroderma is primarily a skeletal disease brought about by an endocrine dysfunction specifically affecting the parathyroids.

Selye [35] reported that after the intraperitoneal injection of as little as 5 units of parathyroid extract there developed in some rats sclerodermatous changes in the skin with calcific deposition.

Bernheim and Garlock [36] indirectly incriminated the parathyroids in the development of Raynaud's syndrome and other vasospastic conditions, since one of their functions is to maintain a constant level of calcium in the blood serum. They are of the opinion that disturbances of calcium metabolism are factors in the development of these conditions.

Weissenbach and his co-workers [37] expressed the belief that scleroderma is an endocrine dysfunction, especially of the parathyroids. Aisenberg [38] reported a case following malaria and stated the opinion that the disease was due to injury to the parathyroids by the malarial parasite.

5. *Disturbance in Calcium-Phosphorus Metabolism.* — Gordon [39] reported the results of physical examination and autopsy in a case of scleroderma. Just as some authors have taken generalized xanthomatosis as evidence of a "lipoid gout," so he has expressed the assumption that scleroderma with interstitial calcinosis is a manifestation of a "sclerotic" or "fibroid" gout associated with a "calcareous" gout and contended that this association is a terminal stage of a calcifying dyscrasia on a dysendocrinal background involving a humoral factor to a varying degree.

Bruusgaard [40] and Bauer, Marble and Bennett [41] considered calcinosis to be due to a disturbed calcium metabolism, as did Merklen, Wolf

34. (*a*) Leriche, R.: Character and Treatment of Scleroderma, J. A. M. A. **104**:2009 (June 1) 1935. (*b*) Leriche, R., and Jung, A.: Presse méd. **43**:1361 (Aug. 31) 1935.

35. Selye, H.: Condition Simulating Human Scleroderma in Rats Injected with Parathyroid Hormone, J. A. M. A. **99**:108 (July 9) 1932.

36. Bernheim, A., and Garlock, J.: Ann. Surg. **101**:1012 (April) 1935.

37. (*a*) Weissenbach, R. J., and Basch, G.: Ann. de dermat. et syph. **4**:1 (Jan.) 1933. (*b*) Weissenbach, R. J.; Basch, G., and Basch, M.: ibid. **4**:125 (Feb.) 1933.

38. Aisenberg, M. F.: Fortschr. a. d. Geb. d. Röntgenstrahlen **39**:443 (March) 1929.

39. Gordon, H.: Ann. Int. Med. **2**:1309 (June) 1929.

40. Bruusgaard, E.: Dermat. Ztschr. **53**:80 (April) 1928.

41. Bauer, W.; Marble, A., and Bennett, G. A.: Am. J. M. Sc. **182**:237 (Aug.) 1931.

and Vallette,[42] who labeled it "calcium gout" and compared it with uric acid gout.

Elenevskiy, Muzychenko and Reznitskaya [43] stated that calcinosis occurs principally in women and that it appears to be the result of a disturbance of the calcium metabolism, associated with a dysfunction of the parathyroid apparatus. Maloney and Bloom [44] reported a case of calcinosis in a boy 14 years of age who had suffered from nephritis. They expressed the supposition that the preceding long-standing nephritis disturbed the physicochemical balance and the solubility of the calcium in the blood and produced the calcium deposits in the skin and subcutaneous tissues.

6. *Endocrinopathy (Other than Hyperparathyroidism).*—Lortat-Jacob, Fernet and Bureau [45] reported a case of scleroderma, melanoderma and calcinosis in a man aged 31 who had a basal metabolic rate of +38 per cent. They concluded that the etiology must have been an endocrine dysfunction. Touraine, Guillaumin and Aubrun [46] reported a case of scleroderma, calcinosis and sclerodactylia of twenty years' duration in a woman aged 48. She was studied interferometrically, and a definite deficiency in gonadal and parathyroid secretions was observed. She had had her menopause at 38, and these authors attributed this to the hypofunction of her gonads. They concluded that the etiology of the condition is a glandular dysfunction. Milian and his co-workers [16] expressed the belief that the syndrome is partly endocrine. The scleroderma in their case began immediately after a panhysterectomy performed because of a psammoma of the ovary.

Follman and Balló [14] in reviewing two hundred cases of scleroderma found pluriglandular insufficiencies in the cases reported, although cases in which no endocrine disorders were present were just as frequent. Longcope [47] stated that it is possible that endocrine disturbances, which occasionally accompany scleroderma, may occur in some instances as a

42. Merklen, P.; Wolf, M., and Vallette, A.: (*a*) Bull. Soc. franç. de dermat. et syph. **31**:120 (July 20) 1924; (*b*) Paris méd. **1**:88 (Jan. 23) 1926.

43. Elenevskiy, K. F.; Muzychanko, P. I., and Reznitskaya, E. Y.: Ortop. i travmatol. (no. 3) **7**:37, 1933.

44. Maloney, E. R., and Bloom, D.: Cutaneous Calcinosis: Report of a Case, Arch. Dermat. & Syph. **23**:245 (Feb.) 1931.

45. Lortat-Jacob, L.; Fernet, P., and Bureau, Y.: Bull. Soc. franç. de dermat. et syph. **36**:902 (July) 1929.

46. Touraine, A.; Guillaumin, C. O., and Aubrun, W.: Bull. Soc. franç. de dermat. et syph. **41**:662 (April) 1934.

47. Longcope, W. T.: Hypoglycemia in Scleroderma: Metabolism in Eight Cases with Reference to Function of Glands of Internal Secretion, J. A. M. A. **90**:1 (Jan. 7) 1928.

result of the involvement of the endocrine glands by the generalized process and thus have no direct bearing on the etiology of scleroderma. Marinesco and Goldstein [48] reported twenty-six cases of scleroderma associated with exophthalmic goiter. Davis and Warren [49] reported calcification of the skin in cases of diabetes mellitus. Petersen [50] concluded from the history and objective results in his case of scleroderma and polyarthritis—especially from the positive Aschheim-Zondek reaction—that the conditions are an expression of changes in the pituitary body and in the vegetative centers in the hypothalamus. Weissenbach, Françon and Robert [51] ascribed to scleroderma with calcinosis an endocrine background with a local irritative factor. Ramsdell [52] reported the case of a 10 year old girl with scleroderma and calcinosis and a Raynaud-like syndrome, in which improvement of vasospasm with absorption of calcium deposits began immediately after unilateral thyroidectomy and an attempt at parathyroidectomy.

7. *Physicochemical Changes, Local or General.*—Wells [53] stated that oversaturation of the blood with calcium salts is followed by deposition of calcium, even without previous degeneration of tissues, the deposition occurring most readily in tissues in which carbon dioxide is least abundant (i. e., increased alkalinity). Morse,[54] on the other hand, claimed that calcification is always preceded by degeneration of fat. Weissenbach and his associates [55] concluded that local physicochemical changes in the tissues play an important and probably exclusive part in some cases of scleroderma with calcinosis.

Klotz [56] obtained staining reactions in calcifying tissues which suggested the presence of soaps, and he insisted that in the formation of pathologic calcified masses the calcium is first laid down as soap, later undergoing a transformation into less soluble phosphate and carbonate.

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48. Marinesco, G., and Goldstein, M.: Nouv. iconog. de la Salpêtrière **26**:272, 1913.

49. Davis, A. H., and Warren, S.: Calcification of the Skin in Diabetes Mellitus, Arch. Path. **16**:852 (Dec.) 1933.

50. Petersen, S.: Ugesk. f. læger **96**:293 (March 15) 1934.

51. Weissenbach, R. J.; Françon, F., and Robert, P.: Paris méd. **2**:28 (July 2) 1932.

52. Ramsdell, E. G.: West. J. Surg. **43**:624 (Nov.) 1935.

53. Wells, H. G.: Tr. Chicago Path. Soc. **9**:208, 1914-1915.

54. Morse, J. L.: Calcification of Skin in a Child, Am. J. Dis. Child. **22**:412 (Oct.) 1921.

55. Weissenbach, R. J.; Truchot, P.; Françon, F., and Laudat, M.: Bull. et mém. Soc. méd. d. hôp. de Paris **47**:837 (May 25) 1931.

56. Klotz, O.: (*a*) J. Exper. Med. **7**:663, 1905; (*b*) **8**:322, 1906.

This view was questioned by Wells,[57] who stated that "when calcium salts are implanted in the tissues they do not become transformed into calcium phosphate and calcium carbonate, but are largely absorbed and removed."

Perutz [58] reported a case of scleroderma with calcinosis in a woman 39 years of age. After determining the calcium balance after the intravenous administration of a 10 per cent solution of calcium chloride and the subcutaneous administration of 30 units of parathyroid extract, he came to the conclusion that the condition is not caused by a disturbance of calcium metabolism but is due to a firmer fixation of the calcium salts in the tissues.

PATHOLOGY

Brown, O'Leary and Adson [17] correlated the histopathologic picture and the physical signs as follows: Hypertrophy of collagen causes pressure phenomena with comparative absence of blood vessels and local anemia. This manifests itself clinically by atrophy of the skin and its appendages. Microscopically, large numbers of dilated lymph spaces appear, with hyperpigmentation in both the rete and the corium, as well as comparative absence of glands of the skin. This is shown clinically by a reduction in the temperature of the skin. Since the number of capillaries is reduced to approximately one third to one half of normal, the temperature of the fingers is decreased, ranging between 19.6 and 29.8 C. (70.5 and 88.8 F.) (the normal temperature is from 32 to 35 C. [89.6 to 95 F.]). The rate of elimination of heat per hand per minute is decreased to 34 small calories (the normal elimination is 100 small calories).

O'Leary and Nomland [23] noted periarteritis, periphlebitis, endarteritis and endophlebitis leading in cases of advanced involvement to obliteration of the lumens of the vessels of the skin and subcutaneous tissues.

Scholz [59] described a case of diffuse interstitial calcinosis with hypertrophy and degeneration of the interstitial connective tissue and secondary deposition of calcium in the elements of fibrous tissue. Necropsy showed that the calcium salts were deposited only in degenerated fibrous tissue and that muscle fibers, no matter how degenerated, did not contain calcium.

Bernheim and Garlock [36] observed hypertrophy of the parathyroids in varying degrees in every case in which operation was performed. In the one parathyroid removed in his case Puddu [28] observed hyperplasia, connective tissue formation and deposition of calcium.

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57. Wells, H. G.: Chemical Pathology, ed. 5, Philadelphia, W. B. Saunders Company, 1925, p. 494.

58. Perutz, A.: Dermat. Wchnschr. **94**:189 (Feb. 6) 1932.

59. Scholz, T.: Radiology **22**:54 (Jan.) 1934.

DIFFERENTIAL DIAGNOSIS

Dermatomyositis.—Allan [60] concluded that dermatomyositis and scleroderma are one and the same disease because he observed the anatomic changes, the mode of onset, the symptomatology, the clinical course and the extent and distribution of the lesions to be identical in the two. He expressed the belief that an internist would diagnose a condition as dermatomyositis, while a dermatologist would call the same condition scleroderma. Langmead [61] suggested that the two are the same condition. Rudolph [62] described a case in which the usual symptoms of acute illness followed by muscular weakness and then by deposition of calcium in the tissues were observed. He contended that it is impossible to determine, once calcinosis has developed, whether the preceding condition has been dermatomyositis or scleroderma, because they resemble each other so closely.

Pseudosclerodermatous Forms of Cutaneous Atrophy.—These differ from true scleroderma in that the caliber of the blood vessels in the indurated areas is not decreased and may even be increased, and that the pseudosclerodermatous thickening is due to an infiltrate of plasma cells (plasmoma) in the interstices of the connective tissue bundles.[63]

Scleroderma Amyloidosum.—Systemic amyloidosis of skin and muscle produces a picture almost indistinguishable clinically from scleroderma with calcinosis; microscopically, however, the typical intercellular amyloid deposits may occur without surrounding inflammatory reactions.[64]

Scleredema Adultorum (Buschke).[65]—This begins with fever and malaise and follows some acute infection. However, the induration of the deeper portions of the skin and of the subcutaneous tissues begins at the nape of the neck and spreads rapidly, but there is no inflammatory reaction, no endarteritis and no atrophy. The hands and feet are never involved; calcinosis never occurs; pigmentary changes are absent; the epidermis is never involved, and the condition undergoes spontaneous involution without any resulting atrophy. The condition, too, is associated with a typical marked lymphocytosis.[66]

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60. Allan, W.: Dermatomyositis or Scleroderma? Report of a Case, Arch. Dermat. & Syph. **19**:265 (Feb.) 1929.

61. Langmead, F. S.: Arch. Pediat. **40**:112 (Feb.) 1923.

62. Rudolph, C. C.: J. Pediat. **4**:342 (March) 1934.

63. Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1931, vol. 8, pt. 2, p. 756.

64. Gottron, H.: Arch. f. Dermat. u. Syph. **166**:584, 1932.

65. Epstein N. N.: Scleredema Adultorum (Buschke), J. A. M. A. **99**:820 (Sept. 3) 1932.

66. Björkenheim, G. A.: Finska läk.-sällsk. handl. **76**:134 (Feb.) 1934.

Acrosclerosis.—Sellei [67] expressed the belief that acrosclerosis and sclerodactylia are separate conditions and presented the following differential criteria: In acrosclerosis there is tense, hard edema; the lesions are symmetrical, and trophic disturbances are marked, ulcerations, changes in the bone (including slow resorption of terminal phalanges) and sometimes loss of phalanges resulting from gangrene. In scleroderma there is true sclerodermic induration; there is no symmetry of lesions, and trophic disturbances are mild. In acrosclerosis there are severe neuralgic pains in the digits, commonly associated with paresthesias or other vasomotor disturbances, and the skin does not become atrophied, while in scleroderma pain is exceptional, and atrophy of the skin occurs in later stages. In scleroderma the ferments of the pancreas, stomach and duodenum act directly on sclerodermal indurations, according to Sellei, causing them to soften and resorb slowly. This action is heightened by the addition of hydrochloric acid and pepsin if hypo-acidity is present. Treatment with ferment has little or no effect in acrosclerosis. Heightened general sensitiveness to epinephrine is found in patients with acrosclerosis but not in those with scleroderma.

Raynaud's Disease.—This begins suddenly and the involvement is, as a rule, symmetrical. Attacks are recurrent. There are local syncope and asphyxia of the extremities—fingers, hands, toes, feet, nose and ears—associated with great pain and disability. Then the cyanosis disappears, being followed by an active hyperemia and a return of the part to normal. Sometimes the cyanosis does not disappear, however, and superficial necrosis of a small area occurs and is followed by scar formation, or the necrosis extends to a greater depth and the tip of a finger is lost. In some cases vascular areas of the brain, kidneys and gastro-intestinal tract are involved, and transient aphasia, hemiplegia, hemoglobinuria, albuminuria and colic are produced. The antecedent history of Raynaud's disease or of a syndrome resembling that condition, which is frequently present, makes one think of a possible connection between Raynaud's syndrome and scleroderma.[68]

TREATMENT

Many therapeutic agents have been reported by different authors to be effective in calcinosis with scleroderma. Other authors, using the same agents, have been unable to corroborate those reports. This confirms the fact that when many remedies are advocated for a disease none is specific for it.

67. Sellei, J.: Arch. f. Dermat. u. Syph. **163**:343 (June 2) 1931.

68. Osler, W.: Modern Medicine, Philadelphia, Lea & Febiger, 1927, vol. 5, p. 740.

In a case of calcinosis universalis Craig and Lyall [4] assumed the condition to be a disturbance of the calcium-phosphorus metabolism due to a parathyroid dysfunction and observed improvement following oral doses of sodium phosphate and parathyroid extract. Bernheim and Garlock [36] pointed out the value of calcium therapy in this disease and in Raynaud's syndrome and other vasospastic conditions. Frölich [69] observed that fractured bones in diabetic patients heal slowly and with difficulty, which leads to the assumption that acidotic metabolism interferes with calcification in newly formed bone. He also observed that the metabolism in rachitic infants results in acidosis. He concluded that this acidosis is a great factor in preventing the deposition of calcium and suggested that a method of therapy based on this theory be employed.

Nelson [70] found that a ketogenic diet produced a negative calcium balance in children. Basing his treatment on the studies of the authors preceding him, Kennedy [71] prescribed a high ketogenic diet consisting of 14 Gm. of carbohydrate, from 20 to 25 Gm. of protein and from 140 to 145 Gm. of fat, and brought about clinical improvement in the calcareous deposits and in the contractures of a 6 year old child who previously had been forced to use braces in walking. Leriche and Jung [72] successfully treated a patient with circumscribed scleroderma by the daily administration of 3 Gm. of ammonium chloride in combination with an acid-forming diet, both agents tending to mobilize and increase the elimination of calcium in the urine.

In Hein's [5] case, improvement was noticed in the summer. He used heliotherapy in summer and irradiation from a quartz mercury vapor lamp in winter for four years, and the calcium gradually disappeared from the tissues. Biopsy showed that the removal was accomplished by means of a foreign body giant cell reaction.

O'Leary and Nomland [23] found administration of thyroid extract, residence in a warm climate, application of heat and massage helpful. Elenevskiy and his associates [43] suggested a calcium-free diet and surgical removal of the tophi in calcinosis. Wilson [73] observed a case of typical calcinosis circumscripta clinically and made extensive studies of the chemical composition of the blood for more than a year. The results

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69. Frölich, T.: Acta pædiat. **5**:294, 1926.

70. Nelson, M. V.: Calcium and Phosphorus Metabolism of Epileptic Children Receiving Ketogenic Diet, Am. J. Dis. Child. **36**:716 (Oct.) 1928.

71. Kennedy, R. L. J.: (*a*) J. Pediat. **1**:667 (Dec.) 1932; (*b*) M. Clin. North America **12**:1655 (May) 1929; (*c*) Proc. Staff Meet., Mayo Clin. **7**:329 (June 8) 1932.

72. Leriche, R., and Jung, A.: Presse méd. **41**:1041 (July 1) 1933.

73. Wilson, G.: Calcinosis Circumscripta: Report of a Case, J. A. M. A. **104**:391 (Feb. 2) 1935.

of chemical examinations of the blood tended to show that the deposition of calcium phosphate may be due to an endogenous hypervitaminosis D caused by a high content of cholesterol in the blood (480 mg. per hundred cubic centimeters being observed) superimposed on an old Raynaud's disease which was in a stage of remission. He tried all types of eliminative agents, changes in the acid-base ratios, and high protein, low protein, fat-free, purine-free and other diets without any appreciable effect on the condition.

Using roentgen therapy Borak [74] cleared up calcific deposits at the palmar surface of the interphalangeal joint in a patient who had suffered injury to the thumb. Paisseau and his collaborators [75] produced definite but only temporary improvement by diathermy. They found that ionization with potassium iodide and administration of thyroid, pituitary, adrenal and ovarian extracts were of no value.

Basch and her co-workers [76] performed parathyroidectomy and periarterial sympathectomy on their patient and reported clinical improvement. Similarly, Puddu [28] noticed improvement in his patient after removal of one parathyroid. Epstein [77] reported highly favorable results from the use of ointment containing thorium X.

REPORT OF CASES

CASE 1.—J. B., an American housewife aged 41, was admitted on May 13, 1935, to the Cumberland Hospital, complaining of a chronic discharge from, and pain in, the left buttock, weakness, sweating, chills and fever. She had been in good health until 1928. At that time an attack of tonsillitis developed; this was associated with occasional transient pain in the right shoulder. A tonsillectomy was performed. Immediately after this the patient began to feel so weak that she was scarcely able to stand on her feet. Her knees became stiff and remained so.

Her voice changed in 1930, becoming markedly nasal. She found at this time that she was scarcely able to open her mouth and that occasionally liquids regurgitated through her nose. At times she had a sensation of strangling when she ate solid food.

In 1931 she noticed an odorless chalky white discharge from the pulp of the terminal phalanx of one of her fingers and from her forehead. In 1932 she began to have a terrific itching sensation in the palms of her hands, and the skin became thick and scaly. The distal phalanges became bulbous and painful, especially when the patient accidentally struck her hand against some object. The joints of the fingers became stiff. A diagnosis of scleroderma was made at this time.

In 1934 pain developed in the right buttock, which persisted and was accompanied by discharge of an odorless chalky white substance such as had previously

74. Borak, I.: Wien. med. Wchnschr. **84**:1012 (Sept. 15) 1934.

75. Paisseau, G.; Schaeffer, H., and Scherrer: (*a*) Arch. de méd. d. enf. **33**: 407 (July) 1930; (*b*) Crón. méd. mex. **29**:504 (Nov. 1) 1930.

76. Basch, G.; Leibovici, R.; Durupt, A., and Basch, M.: Bull. et mém. Soc. méd. d. hôp. de Paris **50**:516 (April 2) 1934.

77. Epstein, S.: Arch. f. Dermat. u. Syph. **167**:533 (March 2) 1933.

issued from her finger. Finally seven stones were discharged from the wound. These were as hard as marbles and varied in size from that of a pinhead to that of a small pea. At this time on awakening in the morning the patient would find her bed linen covered with "sand." She noticed that after the stones were expelled her discharging wounds healed. During the week before her admission to the hospital her left buttock became painful and began to discharge a whitish thick milky material, which has continued to exude until the time of writing.

The patient noticed that her hand would turn a ghostly white after an emotional upset and remain blanched for about thirty seconds, though it never caused her any pain. The attacks were intermittent, and there was no history of acro-asphyxia or cyanosis on exposure to cold.

Her family history was irrelevant. She had had her last menstrual period five months before admission, although previously she had menstruated regularly. She complained of hot flashes, chills and other symptoms of menopause. She had had three pregnancies, one ending in delivery at full term, one in premature labor at eight months and one in miscarriage at three months, the reason for the miscarriage being unknown.

On physical examination it was found that the skin all over the body was indurated, was firmly attached to the underlying tissue so that it could not readily be lifted away, felt lumpy in spots over both arms and was greatly increased in thickness. Ulcers, some healed, others fresh, were found in various areas of the body; from these small particles of a hard chalky material either had been or were in the process of being, expelled. Such ulcers were found in the helixes of the ears, over the joints of the fingers and over the knees and elbows. The skin over the face presented the same appearance as elsewhere but seemed tightly stretched over the cheek bones which emphasized the sharpness of the nose and prevented the patient from opening her mouth as widely as normal (fig. 1). The nasal septum was perforated, and all the teeth were missing and had been replaced by artificial ones. The speaking voice was decidedly nasal. There was clubbing of all the fingers with a flexion deformity which prevented their being completely extended. The skin over the joints of the fingers was shiny and tight. On each buttock, over the spine of the ischium, masses could be palpated. A chalky white discharge exuded from the buttocks.

The blood pressure, the urine, the blood cell count and the sugar, urea nitrogen, creatinine and cholesterol contents of the blood were normal. The basal metabolic rate was —10 per cent on one occasion and —4 per cent on another. On several occasions the phosphorus content of the blood was around 3.8 mg., the calcium content around 11 mg. and the uric acid content around 3 mg., per hundred cubic centimeters. The Wassermann reaction of the blood was negative.

Roentgen studies of the bones revealed calcareous deposits ranging in size from that of a millet seed to that of a small pea in the soft tissues of the right hip joint, around both ischiatic tuberosities, along the inner aspect of the upper third of the right humerus, in the soft tissues of the forehead and around the left os calcis. Crumblike calcareous deposits were also found in the soft tissues of the ungual phalanges of all the fingers, but these were more pronounced in the region of the thumbs. Similar changes were noted in the soft tissues of the metatarsal-phalangeal joint of the right toe and to a lesser extent over the ungual phalanges of the foot.

While the patient was in the hospital small calcareous crumbs continued to discharge at intervals from various areas of her body. On June 18, 1935, a calcareous mass, about the size of a small hen's egg, was excised from the left buttock. A biopsy specimen from the skin of the buttock also was taken at this time.

The patient's condition remained unchanged during her stay in the hospital. She was discharged on Aug. 11, 1935, unimproved.

Pathologic Report on the Skin of the Buttock (S. H. Polayes).—Gross Examination: The specimen consisted of a section of firm skin, one portion of the surface of which presented a purple area 1 cm. in diameter containing a central

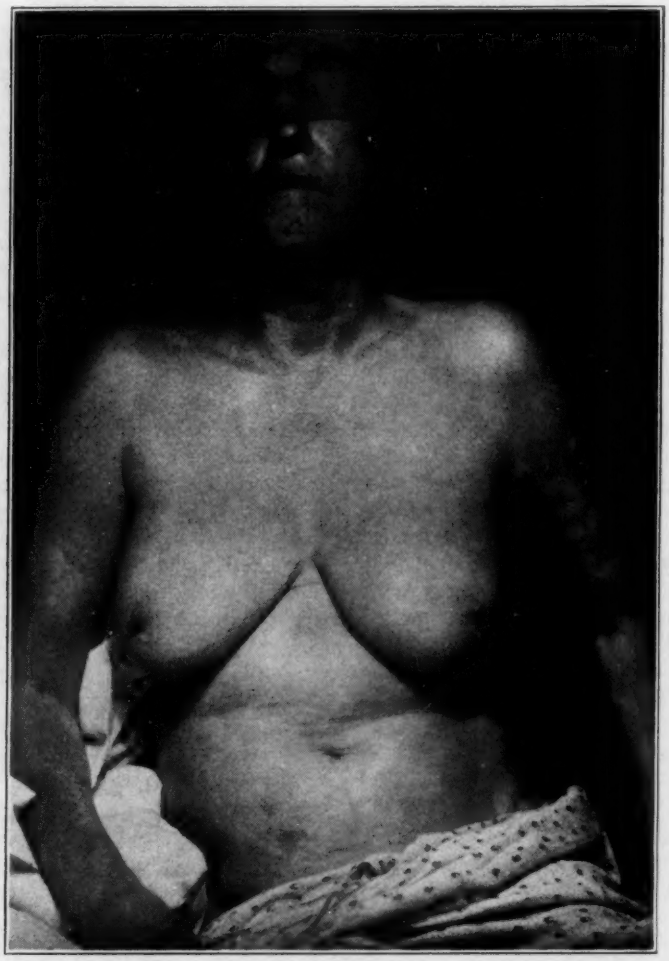

Fig. 1 (case 1).—The facial expression, with corners of the mouth drawn down into a look of discontent, is characteristic of patients with this complaint. The tightly drawn, pinched-up appearance of the skin of the arms can be seen.

opening. Beneath the epidermal layer there was a large amount of calcium deposition.

Microscopic Examination (fig. 2): The epidermis contained areas of atrophy, and there was a moderate increase in the keratin layers. The cutis was thickened by an increase of fibrous tissue and was also the seat of an inflammatory infiltrate

consisting of polynuclear, mononuclear and plasma cells. These changes were accompanied by a proliferation of capillaries quite characteristic of chronic inflammation. There was a tendency to localization of the infiltrate, and in areas where, grossly, the epidermis was seen to be raised, the inflammatory process was most marked. The areas presenting the greatest amount of infiltrate also showed central degeneration and necrosis with considerable calcium deposition. In the periphery

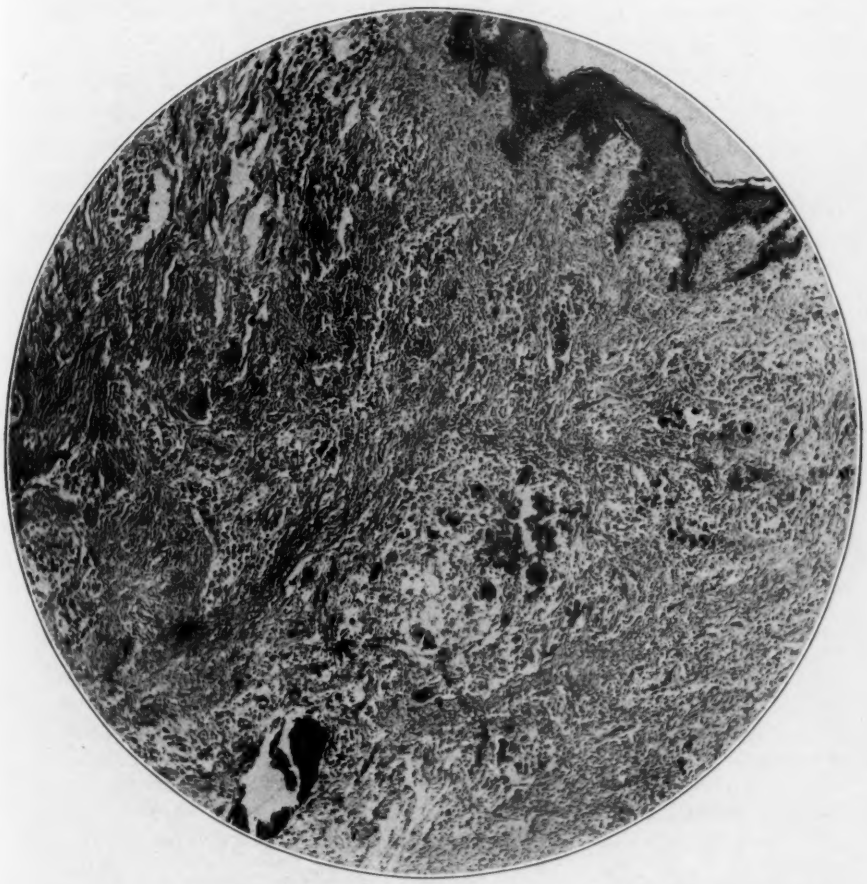

Fig. 2 (case 1).—Microscopic section showing areas of atrophy with increase in the keratin layers. There is also an increase in fibrous tissue with an inflammatory infiltrate and proliferation of capillaries. Where the infiltrate is greatest, necrosis with calcium deposition is seen; × 100.

of some of these lesions there was marked reticulo-endothelial hyperplasia, numerous phagocytic giant cells of the foreign body type being present. In these lesions were also found large deposits of calcium, portions of which occluded the lumens of arterioles. The adipose tissue of the subcutaneous zone was scant; in some areas it was entirely absent. Here the calcium deposition was most extensive, forming huge masses which destroyed and replaced large portions of the subcutis.

Diagnosis.—The following diagnoses were made: (1) atrophic stage of scleroderma, (2) interstitial calcinosis, (3) chronic dermatitis.

Comment.—In this case a history of infection of the upper portion of the respiratory tract (tonsillitis) immediately preceding the onset of the disease was elicited. It has been noticed frequently that the disease has followed an attack of sore throat.[78] The signs of palatal paralysis noted—nasal voice and regurgitation of liquids through the nose—were interpreted as showing involvement of the soft palate by the scleroderma-tous process. The soft palate had become rigid and inflexible, although its nerve supply was unaffected. The history of blanching of the hands after emotional attacks suggests Raynaud's disease and tends to place this patient's condition in the class etiologically related to angiotrophoneurosis. Although the patient appeared to have menopausic symptoms during the period of our observation, her symptoms had started seven years previously, so that we feel that gonadal dysfunction played no part in this case.

The normal basal metabolic rate tended to rule out hyperthyroidism. The normal calcium and phosphorus contents of the blood tended to rule out parathyroid dysfunction. We were unable to establish any cause for the perforated nasal septum. No noticeable results were obtained with any form of therapy.

CASE 2.—M. S., a Jew aged 57, was admitted to Israel-Zion Hospital on July 12, 1935, complaining of hardening of the skin of his body and hemoptysis of four years' duration. He had worked as a stone cutter for several years but had been unemployed since the onset of his present illness ten years before.

For the preceding four years the patient had noticed that the skin on the dorsal surfaces of his forearms had become considerably hardened. This process gradually involved in order the backs of the hands, the entire upper extremities, the chest, the abdomen and finally the lower extremities. Pains had developed in the metacarpal joints two years before. These were sharp and shooting, and occurred mostly in the evening. Successively the pain also developed in the wrists, elbows, shoulders, hips and knees. The patient soon became unable to clench his fists or move any of his joints. His skin had seemed to lose some of its boardlike tautness in the preceding year and to become more elastic, the appearance tending toward normal.

He had had a chronic cough for twenty years, with expectoration of white phlegm and occasionally of half a teaspoonful of blood. He had lost 25 pounds (11.3 Kg.) in the preceding four years.

His mother had died of tuberculosis. The rest of his family history was irrelevant. He had had a penile discharge at the age of 25, but there was no history of syphilis. He had been hospitalized in 1931, at which time a diagnosis of quiescent pulmonary tuberculosis with calcification of mesenteric nodes, together with a diagnosis of scleroderma, was made. Examination of the sputum gave negative results at that time. The basal metabolic rate was + 9 per cent.

78. Durham, R. H.: Scleroderma and Calcinosis, Arch. Int. Med. **42**:467 (Oct.) 1928. Jeanne: Bull. Soc. anat. de Paris **75**:893, 1900. Scholz.[59]

Physical examination revealed moderate fixity of the jaw due to tenseness of the tissues of the face. The patient was edentulous. The skin over his chest showed telangiectasia. The lungs showed a flat percussion note on the left side. Posteriorly there was harsh breathing, and some small fine râles were heard at the base of the lungs. On the right side posteriorly there was bronchovesicular breathing with diminished breath sounds in the lower two-thirds; many small and large moist râles, mostly posttussal, were noted.

There were marked thickening and pigmentation of the skin of the forearm and the dorsum of the hand (fig. 3) and, to a lesser extent, of the arm and upper part of the chest. There were pigmentation and thickening of the skin of the entire body. There was marked limitation of motion of both shoulders, of the elbow joints, of the wrists and of all the finger joints. There was clubbing of the finger-tips. Limitation of motion of the knees, hips and ankles was less marked, but all the patient's movements were stiff. Full extension of the fingers and elbows was impossible because of the sclerosis.

Fig. 3 (case 2).—Thickening and pigmentation of the skin of the hands; tight, stretched appearance, and clubbing of the fingers.

The blood pressure, the blood count, the platelet count, the bleeding and the coagulation time, the results of gastric analysis, the urea nitrogen, sugar, creatinine and cholesterol content of the blood, the chloride content of the plasma and the icterus index were normal. The urine contained traces of albumin and a few pus cells. The uric acid content of the blood varied around 3.5 mg., the calcium content around 10.6 mg., and the phosphorus content around 3.7 mg., per hundred cubic centimeters. Studies of the sputum and stools for tubercle bacilli gave negative results repeatedly. The basal metabolic rate was —8 per cent. The Wassermann reaction of the blood was negative.

Roentgenograms showed calcific deposits in the upper portion of the abdomen which were characteristic of calcified mesenteric glands. There was also calcification of the bursa overlying the right trochanter. The roentgenogram of the chest showed the pulmonary left field to be much smaller than the right, moderate shading being present. There were a large number of calcified deposits ranging in size from that of a pinhead to that of a thumb-nail scattered through the upper portions of both pulmonary fields and through the hilar regions. In both legs there was slight evidence of calcification of blood vessels, and in both hands calcific

shadows appeared in the pulp of the fingers. In the pulp of the distal phalanges evidence of calcium deposits was seen.

Treatment with amino-acetic acid, ephedrine, parathyroid extract and Rosenthal's vaccine [78a] was administered, but the patient showed not the slightest improvement on this therapy and was discharged on Sept. 8, 1935, unimproved.

Comment.—Several confusing elements enter into the consideration of this case: 1. The history that the patient spent several years working as a stonecutter brings to mind the possibility of silicosis and the effect this might have had on the clinical and roentgen picture. 2. A diagnosis of quiescent tuberculosis had been made previously, and the effect such a condition might have had on the picture must be considered. 3. There is the problem of how many of the signs and symptoms actually were due to calcinosis.

The occasional hemoptysis described may be attributable to any of the three mentioned conditions. However, in the absence of elevation of temperature, fast pulse rate, night sweats or any of the other clinical symptoms of tuberculosis and because of the repeatedly negative results of examinations of sputum and stool for tubercle bacilli, active tuberculosis may be ruled out. The calcific deposits scattered through both pulmonary fields and hilar regions were so large and definite that we feel that they indicated the calcification of calcinosis, rather than any possible diffuse silicotic lesion. The latter would be smaller, more equally bilateral in distribution and less calcified, and the deposits would tend to be distributed toward the bases of the lungs because of the effect of gravity. As will be noted here, the deposits tended to be located at the apex of the lungs. Of course, we cannot tell how much silicosis actually was present and how much shading this actually caused on the roentgenogram.

CONCLUSIONS

In view of the confusing and contradictory information just reviewed, certain ideas concerning calcinosis with scleroderma present themselves to us. We believe that the lesions of scleroderma begin as a localized or generalized vasospasm of the arterioles.[79] This spasm causes decreased nutrition of the affected parts. The involved tissues degenerate, and hypertrophy of collagenous tissue follows. As this connective tissue increases in amount, the blood vessels become obliterated by pressure; fat disappears and is replaced by fibrous tissue; the corium and subcutis become thin, and the skin becomes atrophic. Finally the

78a. A nonspecific foreign protein consisting of a filtrate of nonpathogenic bacteria.

79. Adson, A. W.: Indications for Operations on the Sympathetic Nervous System, J. A. M. A. **106**:360 (Feb. 1) 1936.

blood vessels, hair follicles and sweat and sebaceous glands are all absorbed and disappear.[80] These are the changes of scleroderma.

It is known [81] that calcium salts, being most soluble in acid mediums, tend to remain in solution in tissues which have a more acid reaction, that is, tissues in which the carbon dioxide tension is high. Conversely, they become insoluble and tend to precipitate in tissues which are more alkaline, namely, in tissues in which the carbon dioxide tension is low. Tissues which are physiologically active have a higher carbon dioxide tension as a result of the vigorous metabolic activity in which they are engaging. In such tissues calcium tends to remain in solution. In tissues which are physiologically inactive owing to the decreased metabolic activity, there is a lower carbon dioxide tension, and calcium tends to become insoluble and to precipitate. We believe that those regions are relatively inactive where fibrous tissue has come to predominate by replacing other tissues, and that these regions therefore have a low carbon dioxide content, which favors precipitation of calcium salts. Precipitation occurs, and calcinosis results.

It is a matter of common knowledge that the parathyroids regulate calcium metabolism [82] and that an increase or decrease in their activity is accompanied by a corresponding increase or decrease in the level of calcium in the blood. It is known that the bones are the storehouses of available calcium and are the source of any increase in the calcium content of the blood.[83]

Since in calcinosis calcium is removed from the blood for deposition in soft tissue, one might expect to find a decrease in the calcium content of the blood, which usually is not observed. This is explained, of course, by the action of the parathyroids.[84] As quickly as calcium is withdrawn from the blood it is replaced from the supply in the bones through the action of the parathyroids, and no change is noted in the level of calcium in the blood. The process is very slow, so that if there is an adequate intake of calcium the amounts removed from the bones are replaced, and little or no osteoporosis is observed. We believe that instances of reported improvement after parathyroidectomy may be explained in this

80. Ormsby, O. S.: A Practical Treatise on Diseases of the Skin for the Use of Students and Practitioners, Philadelphia, Lea & Febiger, 1934, p. 541.

81. Cantarow, A.: Calcium Metabolism and Calcium Therapy, Philadelphia, Lea & Febiger, 1933, p. 68. Mechanism of Calcification, editorial, J. A. M. A. **106**:384 (Feb. 1) 1936. Wells.[53] Wells.[57]

82. Cantarow,[81] p. 52.

83. Cantarow,[81] p. 96.

84. Shelling, D. H.: The Parathyroids in Health and in Disease, St. Louis, C. V. Mosby Company, 1935, p. 208.

way: Following extirpation of the glands there is a decrease in the level of calcium in the blood. The blood serum becomes less saturated with calcium, and the tendency for the calcium to precipitate is decreased, even when favorable conditions for such deposition occur.

The foregoing considerations explain the pathogenesis of calcinosis accompanied by scleroderma, but it is known that either scleroderma or calcinosis occurs unaccompanied by the other. Our understanding of this is as follows: Boyd [85] stated that there is a tendency for dying or dead tissue which is surrounded by living tissue and accessible to body fluids to be calcified. In such areas circulation is absent, but slow diffusion takes place from surrounding blood and lymph. Dying tissue undergoes hyaline changes, and it is this hyaline material, in which carbon dioxide tension is probably low because of inactivity of the tissue, that becomes the seat of calcification. Necrosis and hyaline changes are the two chief antecedents of calcification. Wells [57] stated that physical rather than chemical structure seems to determine the deposition of the calcium, the latter and phosphate being adsorbed by the degenerated tissue.

We feel that when scleroderma is found alone, the vasospastic process causing the condition occurs so gradually that local anemia is produced slowly, and death of tissue occurs very gradually. Fibrous tissue replaces the degenerated tissue as rapidly as it dies, so that examination of such specimens at any time reveals large areas of fibrosis but few or no areas of actual necrosis. In the absence of necrosis and hyaline changes, the two antecedent factors necessary for calcification, none occurs, and scleroderma without calcinosis results.

In cases in which calcinosis alone is present there is usually a history of circulatory disturbances to the parts involved. We believe that in those cases a severe, localized vasospasm occurs, being associated with such obstruction of circulation that localized necrosis follows, with consequent calcification or with consequent fibrosis, hyalinization and calcification. Microscopic section of the biopsy specimen from the buttocks of the patient in case 1 (fig. 2) shows this.

In other words, it seems to us that the same vasomotor spasm is the basis of the two conditions. What occurs thereafter depends on the degree of tissue destruction present and on the rapidity with which it occurs. A slow occlusion of the circulation with much fibrosis is likely to cause scleroderma alone. If, in addition, there are areas where circulatory obstruction is sufficiently rapid and prolonged to cause necrosis, both scleroderma and calcinosis develop. If the circulatory obstruction

85. Boyd, W.: A Text-Book of Pathology, Philadelphia, Lea & Febiger, 1934, p. 50.

is relatively acute and localized and areas of necrosis alone result, without fibrosis, then calcinosis alone occurs.

We believe that the last word as to the pathogenesis of scleroderma and calcinosis has by no means been said, and that scarcely anything is known as to treatment of advanced stages of these conditions. It appears to us that future work on the treatment of calcinosis with scleroderma will be along the line of making the diagnosis early, before the pathologic changes become permanent, and of treating the initial vasomotor spasm which causes the condition. Such treatment may possibly consist of sympathetic ganglionectomy or some other similar method—the type of work being done by Adson and his co-workers.[86]

Dr. Henry Joachim supplied clinical notes and gave permission to use case 2.

86. Brown, O'Leary and Adson.[17] Adson.[79]

SPECIFIC TREATMENT OF STAPHYLOCOCCIC INFECTIONS OF THE SKIN

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Staphylococci were observed by many workers during the latter part of the last century. Billroth in 1874, according to the "British System of Bacteriology," [1] took precedence in the recognition of this organism and of its association with suppurating pathologic lesions. Ogston in 1883 introduced the name Staphylococcus, because of the morphologic characteristics of the organism. Rosenbach in 1884 divided the group into two types—the pigment-producing and the nonpigment-producing strains. That the staphylococcus elaborated a soluble principle both in vivo and in vitro was first demonstrated by Van de Velde in 1894, who called this soluble principle leukocidin and stated that it possessed not only the property to destroy leukocytes but that to destroy tissue cells as well. Van de Velde also, in 1895, observed that the normal blood serum contained protective properties against leukocidin and that the injection of broth cultures of staphylococci into experimental rabbits caused the elaboration of a specific antitoxin as a result of the response to this antigen.

Neisser and Wechsberg [2] in 1901 stated that the amount of toxin produced was in direct ratio to the virulence of the organism and that both Staphylococcus albus and Staphylococcus aureus elaborated a soluble exotoxin. We have never encountered a type of Staph. albus that produced an exotoxin, but Burnett reported having observed a toxigenic strain of that organism.

It has long been noted that heat-killed suspensions of staphylococci when injected subcutaneously may produce an extremely violent tissue reaction with necrosis. This suggests the probability of an intrinsic factor in destructive lesions caused by staphylococci.

Read at the Thirty-Seventh Annual Meeting of the American Therapeutic Society, Kansas City, Mo., May 8, 1936.

1. Fleming, Alexander: The Staphylococci, in A System of Bacteriology, Medical Research Council, London, His Majesty's Stationery Office, 1929, vol. 2.

2. Neisser, M., and Wechsberg, F.: Ueber das Staphylotoxin, Ztschr. f. Hyg. u. Infektionskr. **36**:299, 1901.

In the past two or three years there has been a great revival of interest on the part of bacteriologists concerning the exotoxin produced by staphylococci. Parker, Dolman and Burnett have been among the early workers, and in the past year the literature concerning the immunology of staphylococcic infections has become voluminous.

During the past three years we have studied the properties of filtrates obtained in one hundred and twenty-five cases of deep visceral infection with the staphylococci. These infections included septicemia, pyemia, osteomyelitis, cavernous sinus thrombosis, pulmonary abscess, carbuncles, furuncles, abscess of the brain and necrotizing ulcers complicating erysipelas. From the work of Neisser and Wechsberg [2] one can postulate with a great deal of assurance that theoretically all invading staphylococci should be considered toxigenic. In the filtrates of 90 per cent of the strains studied we have been able to demonstrate a free toxin which has the property of necrotizing the skin of a rabbit and of hemolyzing blood in various dilutions. Exceptionally this toxin hemolyzes blood in dilutions of from 1:4,000, and when injected intravenously into rabbits in a dose of from 0.5 to 1 cc. per kilogram of the body weight it causes death. If the toxin is virulent and the dose is large, death may occur immediately. If the animal is resistant and the dose of toxin is not overwhelming, death may be delayed for four or five days. When this occurs there is a marked loss of weight accompanied by diarrhea and other evidence of toxemia. At postmortem examination the heart, kidneys, liver and spleen show macroscopic and microscopic evidence of toxic changes not unlike those observed in cases of diphtheritic toxemia. Ulcerative lesions in the colon are frequently present.

Staphylococcus toxin may be transformed to a toxoid, and according to Dolman [3] the injection of toxoid increases the normal antitoxin content of the blood. The toxin has marked antigenic properties, and injection of the toxin into horses produces an antitoxin of high titer. It has long been known that horses and human beings have a resident titer of antitoxin against virulent staphylococci, and it is stated that normal persons possess the property of destroying 2,000 cocci per cubic centimeter of blood.[1]

One of the important properties of the toxin is its ability to produce thrombi when injected into the veins of the ear of rabbits. If 0.1 cc. of potent toxin is injected into the marginal vein of the ear of a rabbit marked local reaction occurs within an hour. If the ear is excised on from the fourth to the sixth day, histologic study shows a marked reac-

3. Dolman, C. E.: Pathogenic and Antigenic Properties of Staphylococcus Toxin, Canad. Pub. Health J. **23**:125, 1932.

tion in the intima of the vessels with the formation of thrombi. Loeb,[4] in 1903, observed that the blood plasma of geese inoculated with cultures of staphylococci coagulated more rapidly than plasma inoculated with cultures of streptococci, tubercle bacilli or other organisms. From these observations it was deduced that in the process of metabolism staphylococci elaborate a substance which acts like thrombokinase. In our work with the toxin we have found that the time of coagulation of citrated blood plasma may be decreased by adding toxin to the blood, but the addition of toxin has no apparent influence on the coagulability of oxalated plasma. From our experience we believe that the injury to the vessel wall and the change in the coagulability of the blood are important factors in the production of thrombi which are so frequently observed at autopsy in cases of death due to staphylococcic infections.

Levine and his colleagues,[5] working at the Dermato-Venerologic Institute of Kiev, U. S. S. R., were able by injecting cultures of pigment-producing staphylococci to produce necrotic areas in the back of experimental rabbits. In other instances abscess formation occurred, and many strains were inert, producing little or no cutaneous reaction. This variation in reaction to the injection of living organisms into the back of an experimental animal indicates that the reaction of the host is largely dependent on the toxin-making properties of the invading staphylococcus.

The ability of commercial antitoxin to combine with toxin is well illustrated by the property of minute amounts of antitoxin when added to a toxin of known hemolytic titer to combine with toxin and inhibit hemolysis of washed red cells of rabbits. Mixtures of toxin and antitoxin are nonlethal when injected intravenously into rabbits, and the dermonecrotic property of toxin is abolished when toxin is mixed with antitoxin. It is possible to protect a rabbit against four or five lethal doses of toxin by injecting antitoxin before the toxin is given. These observations along with the fact that all staphylococcus toxins are neutralized by the same antitoxin would tempt the clinician to be optimistic concerning the therapeutic use of commercial staphylococcus antitoxin. One must recall that like diphtheria toxin, staphylococcus toxin is a fixed toxin, that once it is bound to tissue cells it is not affected by subsequent injections of antitoxin and that the organisms unquestionably contain a toxin within themselves. We have been able to grow staphylococci in mediums containing large amounts of staphylococcus antitoxin without any evidence of inhibition of growth of the organism,

4. Loeb, Leo: The Influence of Certain Bacteria on Coagulation of Blood, J. M. Research **5**:407, 1903.

5. Levine and others, cited by Wise, F., and Sulzberger, M. B.: Year Book of Dermatology and Syphilology, Chicago, The Year Book Publishers, Inc., 1935.

but filtrates obtained by this method do not possess hemolytic dermonecrotic or lethal properties.

The recent literature contains numerous references to cases of staphylococcic septicemia in which recovery has followed the use of staphylococcus antitoxin. We have recently observed a case in which a pulmonary abscess was present and in which the results of blood cultures were positive on numerous occasions. Recovery followed the administration of staphylococcus antitoxin.

Many pigment-producing toxigenic staphylococci may be isolated from the normal intact skin. These organisms are capable, particularly after slight abrasions, of invading the deeper tissues and either producing a localized ulceration or invading the blood stream to be borne embolically to other parts of the body.

We wish to report two cases (cases 1 and 2) of systemic infection in which the blood-borne deposit of staphylococci in the skin was followed by necrosis of tissue and the formation of definite necrotic areas. From our review of the literature it appears that necrotizing areas following embolic deposits of staphylococci in the skin have not been previously described except as occurring in the extremities.

REPORT OF CASES

CASE 1 (Dr. C. E. Carrier).—A man aged 74 entered St. Mary's Hospital on May 28, 1935, and died on June 7, 1935. The history stated that the onset of the illness had been abrupt and accompanied by numerous chills and high fever. Before his admission to the hospital the patient had noticed that black areas were appearing on both wrists and on the lateral aspects of the fingers. At the time he was admitted to the hospital the fingers of both hands were gangrenous. Before death marked necrosis of the skin of all the fingers was observed. Cultures of the blood repeatedly showed Staph. aureus, and from the local lesion a pigment-producing staphylococcus was isolated. The port of entry was unknown.

CASE 2 (Dr. Hubert M. Parker).—A man aged 76 entered St. Mary's Hospital on Dec. 15, 1935, and died on Dec. 23, 1935. The illness ran a typical septic course, development of petechiae in the skin being observed almost daily. Before this shower of bacteria a chill was generally noted. The temperature ranged from subnormal to 104 F. Several of these petechiae developed into round punched-out necrotizing ulcers with a dirty steel-black border that showed no tendency to heal. At necropsy innumerable abscesses were observed in the lung, and septic infarcts were noted in the kidney. Smears from the abscesses revealed staphylococci.

Comment.—In both of these cases embolic deposits of bacteria in the skin were followed by necrosis of the skin and the development of ulcers. In both cases the infection was overwhelming and the outcome was apparent from the onset. Filtrates obtained from the blood cultures in both of these cases were markedly hemolytic and dermonecrotic.

It is taught that in cases of progressive destructive ulcerations of the skin following surgical procedure, particularly in those subsequent to operations for empyema or ruptured appendix, and in the implanta-

Fig. 1 (case 1).—Gangrenous lesions involving the skin and soft tissues of the hands.

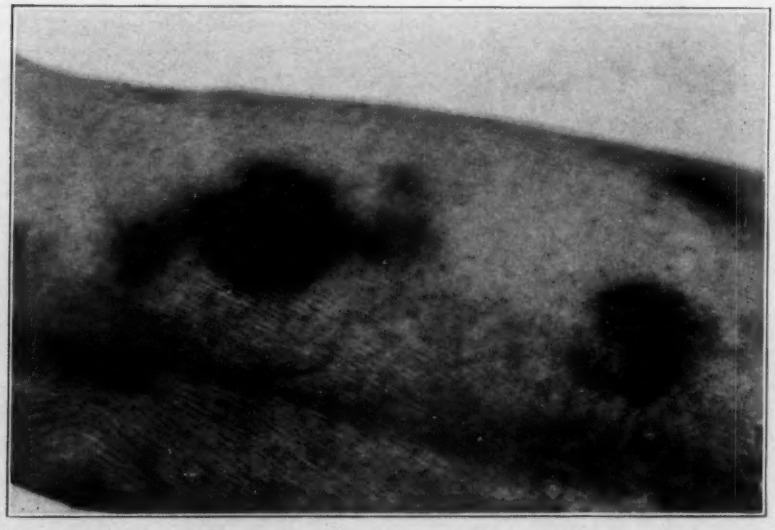

Fig. 2 (case 2).—Punched-out ulcers on the body.

tion infections of the skin following trauma, ulcers, frequently assuming tremendous proportions, develop as a result of the symbiotic activity of staphylococci and streptococci. In our previous work on necrotizing

ulcers complicating erysipelas,[6] we were not able to produce necrosis or any profound reaction in the skin of an experimental animal by means of the filtrates of a streptococcus although a staphylococcus derived from such an ulcer in all cases possessed marked dermonecrotic properties.

It is possible that the solution of continuity of the skin is not due only to the necrotic influence of the toxin alone. In our opinion it is enhanced by the thrombosis of veins adjacent to the ulcer that is so consistently present in these destructive lesions.

CASE 3 (Drs. J. Park Neal, Vincent Williams and Hubert M. Parker).—A man aged 38 entered St. Joseph's Hospital on April 9, 1936, suffering from acute suppurative appendicitis. The appendix was removed, and drainage was instituted. The sutures were removed on the seventh day. On the eighth postoperative day marked undermining of the walls of the wound was noticed, and on the tenth day necrosis of the skin occurred. On the thirteenth day, after numerous smears and cultures had revealed only a pigment-producing, markedly hemolytic staphylococcus in the secretions from the wound, 100,000 units of commercial staphylococcus antitoxin was administered over a period of three days. The patient was also given 300 cc. of blood by transfusion. The antitoxin had no influence on the progression of the rapidly destructive ulcerative process. For a distance of 2 or 3 cm. ahead of the margin of the wound the area was markedly reddened and indurated, and in this area thrombosed veins could be palpated. We feel that in this case the time lost in the attempted antitoxin therapy was detrimental to the patient. On the eighteenth postoperative day the ulcer measured 14 by 16 cm. On this day the wound was cauterized, and at the time of the cauterization the undermined edges of the wound showed thrombi in all the superficial veins of the skin and of the panniculus. After the ulcer had been cauterized all activity and tendency to extension disappeared, and at present the wound shows no evidence of activity. After staphylococcus antitoxin was administered the immune titer of the patient's blood was measured by the method of Parish and his co-workers [7] and was found to be sixteen times the normal. This would indicate that factors other than the high antitoxin titer of blood were concerned in the progress of this ulcer.

CASE 4 (Dr. C. B. Summers).—A girl aged 2 years entered the isolation ward of the Kansas City General Hospital on Dec. 11, 1935, and was discharged on Feb. 16, 1936. The patient had chickenpox. The disease was violent from the onset, and in many of the pox hemorrhagic areas developed. On these lesions crusts resembling those of impetigo formed, which later developed into crateriform ulcers. These ulcers were undermined and secreted a profuse yellow, creamy pus. From December 11 to January 26 the ulcerative process was slowly progressive. Examination of material from the ulcers revealed the presence of pigment-producing staphylococci, both by culture and by direct smear. A culture of the blood remained sterile. On Jan. 20, 1936, staphylococcus antitoxin was administered. Improvement was striking; within twenty-four hours the secretion was markedly reduced, and within three days healing of the lesions was evident. The period of improvement

6. Stookey, P. F.; Ferris, C. R.; Parker, H. M.; Scarpellino, L. A., and English, K. E.: Necrotizing Ulcers Complicating Erysipelas, J. A. M. A. **103:** 903 (Sept. 22) 1934.

7. Parish, H. J.; O'Meara, R. A. Q., and Clark, W. H. M.: Clinical Investigation of Staphylococcal Toxin, Toxoid and Antitoxin, Lancet **1:**1054, 1934.

coincided approximately with the period of maintenance of immune titer in the human body by use of heterologous serum. Three doses of the antitoxin were administered, apparent improvement following each dose and a relapse occurring after a period of from seven to ten days. At the time the patient was discharged from the hospital most of the lesions were markedly improved or healed, and since then they have been active, moderate suppuration and necrosis of tissue occurring.

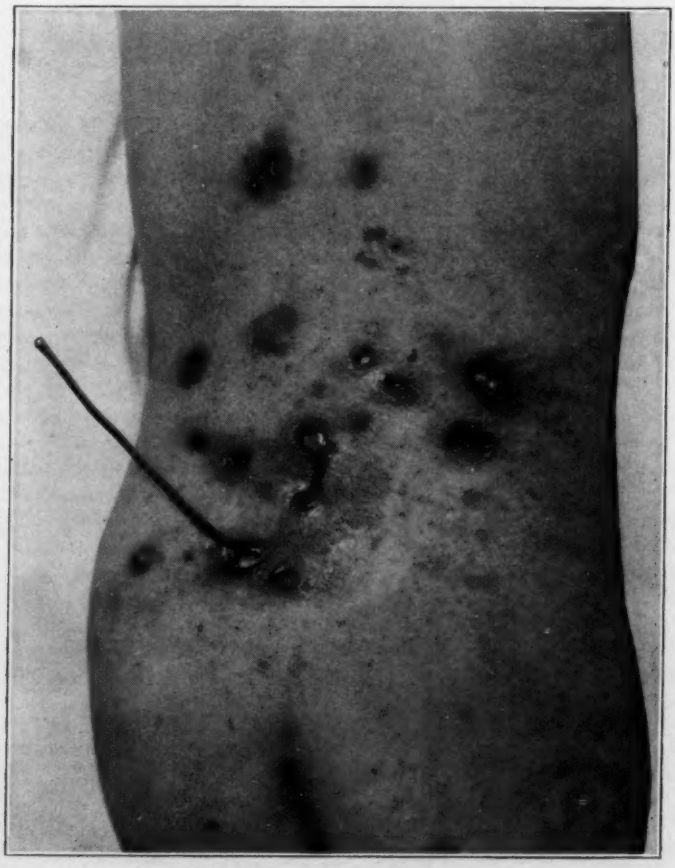

Fig. 3 (case 4).—Lesions on the back on January 6.

At the time of writing the condition of the child is approximately identical with the condition existing at the time she was admitted to the hospital.

Comment.—In this case we were profoundly impressed by the improvement following the administration of antitoxin and the subsequent relapses. While this case is to be considered as a failure from the standpoint of therapy there was unquestionably immediate response to antitoxin, and the duration of this improvement was approximately

equal to the duration of the immune titer by the use of a heterologous serum in the human body. The filtrate from the culture of staphylococci in this case was hemolytic and dermonecrotic.

Case 5 (Dr. O. F. Bradford).—A boy aged 3 days entered St. Joseph Hospital on Dec. 15, 1935, and was discharged on Dec. 30, 1935. The history stated that the aunt, who was acting as nurse to the child, suffered from a furuncle on

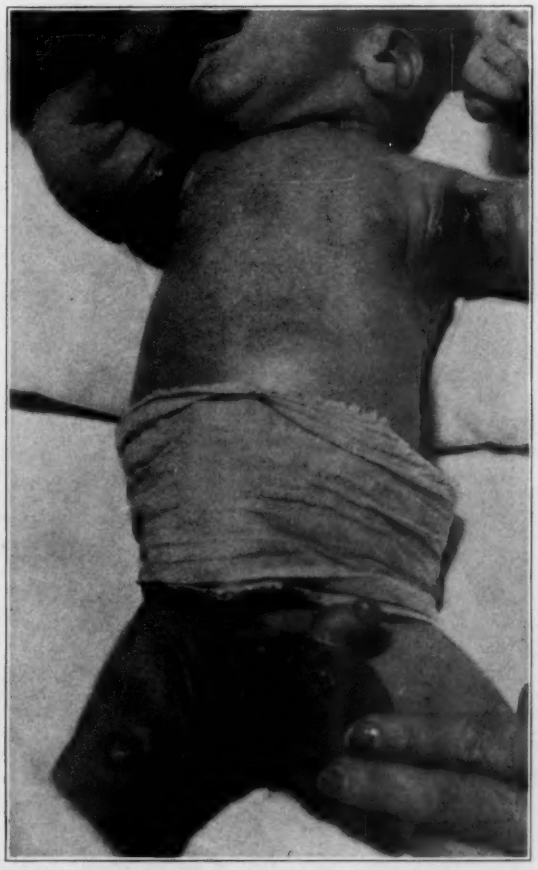

Fig. 4 (case 5).—Destructive lesions of the neck, axillae and groin.

the hand. The infection in the infant began as a vesicle in the right groin. Shortly after the appearance of the first vesicle other vesicles developed in both axillae and on the neck. Ulceration rapidly ensued, and at the time of examination the skin and panniculus were destroyed in both axillae. There was a crateriform ulcer in the right groin. The scrotum was bluish black, and in the folds of the skin of the neck there was a deep necrotic ulcer which progressed with marked rapidity. Staphylococci were isolated by direct smear and by culture. Staphylo-

coccus antitoxin was administered. The lesions at once became stationary, and healing progressed with remarkable rapidity. The patient was discharged from the hospital on the fifteenth day. The filtrates from this culture showed hemolytic and dermonecrotic properties.

CASE 6 (Dr. Thomas B. Hall, Kansas City, and Dr. H. R. Conway, Marshall, Mo.).—A woman aged 40 entered the Fitzgibbons Memorial Hospital, Marshall, Mo., on June 25, 1935. The history stated that on June 20, 1935, the patient scratched the inner aspect of the upper part of her right thigh while crawling through a wire fence. The wound became red and edematous and began to slough;

Fig. 5 (case 6).—Condition of lesion four days after administration of antitoxin. Note the healing around the edges.

it was treated by local measures. On June 22 the sloughing area increased greatly in size, attaining dimensions of 10 by 12 cm. Chills and hyperpyrexia were present when the patient was admitted to the hospital. The temperature was 104.6 F.; the pulse rate was 112 and the respiratory rate 26. Urinalysis showed the reaction for albumin to be 2 plus; there were numerous red blood cells and from 18 to 20 white blood cells per field. Examination of the blood showed 13,200 white cells and 83.9 per cent hemoglobin. There were 74 per cent polymorphonuclears. The patient was treated by intravenous injections of metaphen and intramuscular injections of foreign proteins, and despite this treatment the necrotic area on her thigh became larger and her temperature ranged from 100 F. in the morning to 104 F. in the evening.

While treatment was being given three other lesions appeared on the right thigh and a metastatic abscess developed in the left axilla; this was opened and drained. Also, several small sloughs developed on the left knee. The cultures from original lesions revealed both hemolytic varieties of Staph. aureus and streptococci, and staphylococci were observed in material from the metastatic abscess. On July 8 the patient's condition was grave and she appeared to be near death. On July 9 60,000 units of staphylococcus antitoxin was administered; on July 11 40,000 units was given, and thereafter 20,000 units was given daily for the next four days, making a total dose of 180,000 units. The progressive ulceration was rapidly arrested, and the temperature gradually subsided. The wounds healed by granulation, and the patient was discharged from the hospital on July 30, 1935, on the thirty-fifth day after hospitalization.

COMMENT

It is obvious that no conclusions relative to the therapeutic value of staphylococcus antitoxin can be drawn from so small a series of cases as that which we have been able to observe. The results of this form of therapy are contradictory and not consistent. We believe that in three of our six cases unquestioned benefit resulted from the therapy. It is our opinion that the use of staphylococcus antitoxin is justified in cases of staphylococcic septicemia and of necrotizing ulcers due to pigment-producing toxigenic staphylococci.

COSMETIC DERMATOLOGY

I. TRIETHANOLAMINE

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Triethanolamine is a modern synthetic saponifying agent of unusual properties which offers much assistance in the creation of emulsions designed for the care of the skin, scalp, hair and nails. Pharmacists may not carry it in stock, and it is a nuisance to secure it in lots as small as 1 pound (0.5 Kg.), but if there were sufficient demand, a supply would be forthcoming to the smallest hamlet in the United States.

The literature on triethanolamine in medical, and specifically in dermatologic, journals has been meager. It needs no review, as it is so recent that it is available in any file of the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY.[1]

Technical triethanolamine is a faintly yellowish viscous or syrupy liquid with a faint odor of ammonia. Its specific gravity is 1.13. It melts at about 18 C. and boils at 227 C. at 150 mm. Triethanolamine is hygroscopic and absorbs carbon dioxide from the air. In order that its characteristics may be maintained, triethanolamine must be stored in air-tight containers.

Triethanolamine is completely soluble and mixes in all proportions with water.

The reaction of triethanolamine is alkaline to a degree given as one-sixth that of ammonia. Its p_H is between 10 and 11. This makes it an antacid. Triethanolamine forms salts with acids and combines with various metallic salts. The chemical structure of such metallic compounds has not been determined completely as yet.

The triethanolamine available in commerce is a mixture of mono-ethanolamine, diethanolamine and triethanolamine in proportions variously given as follows: mono-ethanolamine, from 2 to 5 per cent, usually less than 2.5 per cent; diethanolamine, from 11 to 20 per cent, usually less than 15 per cent; triethanolamine, usually more than 80 per cent, and water to make 100 per cent.

Triethanolamine 99 per cent pure was available for a time, but it was costly and no more satisfactory in preparations than the commercial mixture.

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1. Maynard, M. T. R.: Triethanolamine: An Adjunct to Dermatologic Therapy, Arch. Dermat. & Syph. **25**:1041 (June) 1932; **34**:268 (Aug.) 1936.

USES OF TRIETHANOLAMINE PRODUCTS

Triethanolamine is a powerful cleansing agent and has a softening effect on the skin. It helps remove blackheads, grease and the scaliness of seborrhea. It produces no irritation of the skin, even if constituting as much as 15 per cent of the preparation. It has no caustic action either on the skin or on textiles. I have found that triethanolamine has an emulsifying effect unlike that of any other agent. The theories for formation of an emulsion are not clarified. In fact, no one theory is accepted by all.

Despite a fairly extensive application, there have been no irritating by-effects, though it is of course too much to expect that such irritating by-effects never will be reported. In the time during which I have been experimenting with emulsions and soaps containing triethanolamine on normal and on diseased skin, I have been fortunate in having found no person who showed any symptoms of irritation. When it is considered that I have (cautiously, it is true) used emulsions of triethanolamine on areas of skin from which the epidermis had been denuded, it must be conceded that these emulsions have been subjected to a severe test.

The following report may be of interest: Triethanolamine ricinoleate was prepared by warming triethanolamine and ricinoleic acid. It was found effective for detoxifying Staphylococcus aureus and gave evidence of detoxifying tubercle bacilli. The detoxification consisted of neutralizing toxic products of bacterial cells to such an extent that the toxin was still able to stimulate the production of antibodies but was unable to exert toxic effects. The result is due to any one or more of the following effects of the triethanolamine ricinoleate on the bacteria: surface tension, solubility of detoxifier, duration of contact, temperature of mixture, chemistry of anions and cations, extent of ionization of detoxifier and nature of the organism.

This observation opens wide the field of speculation as to the ultimate uses of soaps and emulsions containing triethanolamine, but it is useless to discuss the matter without much further experimentation.

TESTED FORMULAS UTILIZING TRIETHANOLAMINE

The following formulas have been used:

Emulsion for Normal Skin	
Stearic acid	1 part
Triethanolamine	1 part
Water to make	100 parts
Triethanolamine Cream Base	
Stearic acid	8 parts
Triethanolamine	1 part
Water to make	100 parts

Emulsion for Acne and Blackheads

Stearic acid	10 parts
Triethanolamine	1 part
Water to make	100 parts

(Melt stearic acid; add to mixture of triethanolamine and water brought to same temperature and mix.)

Triethanolamine Oleate Soap

Oleic acid	11 parts
Triethanolamine	5 parts
Water to make	100 parts

(Mix at cold temperature.)

EFFECTS OF CHOLESTEROL IN PETROLATUM ON LOSS OF WATER BY THE SKIN AND ON CLEANSING

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AND
D. E. MURRAY, B.S.*
CHICAGO

Soap and water are the common agents used for cleansing the skin the world over save in certain arid districts in countries, such as Asia Minor, and in the arctic regions, where the air is dry and water is scarce. The scarcity of water is probably not as much the cause for the use of other cleansing agents as are the dryness of the air and its dehydrating effect on the skin. Because of these conditions persons living in arid regions learned to use olive oil and those living in the arctic regions adopted the use of blubber.

Soap, of course, is alkaline, since it is a salt of a strong base and a weak acid and dissociates readily in water. Gardiner [1] has shown that all soaps, even those of the so-called neutral type, contain from 4 to 7 per cent of alkali.

Alkaline soaps soften the epidermis and may penetrate the horny layer of the skin to the germinal layer, where they produce irritation. Jordan, Walker and Osborne [2] carried out tests on the skin with various types of soap and found that all soaps give rise to a dermatitis if they are left on long enough. We verified this by placing the purest soap obtainable on the skin in concentrations used in ordinary washing. An intense erythema resulted within twelve hours.

Since soap is irritating to all skins if left on long enough, why does one not observe more cases of "soap or alkali dermatitis"? Schade and Marchionni [3] have given the answer in part by showing that the normal healthy skin is acid and possesses a weak buffering action which varies in different persons and even in the same person at different times. This and the time and quantity factors provide the explanation.

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* From the Department of Physiology and Pharmacology, Northwestern University.

1. Gardiner, F.: Brit. M. J. **2**:1263, 1908.

2. Jordan, J. W.; Walker, H. L., and Osborne, E. D.: New York State J. Med. **36**:791 (May 15) 1936.

3. Schade and Marchionni: Arch. f. Dermat. u. Syph. **154**:690, 1928.

According to many authorities,[4] soap is the principal cause of occupational dermatitis. This is especially true in women and in persons who have to use much soap in their work. To many persons soap is irritating even when used sparingly. Especially is this true of diseased skin, on which even water alone is borne but poorly. For persons whose skin is sensitive to soap and water, some form of oil is the only means of cleansing.

For cleansing purposes in this country oils are used almost entirely in the form of emulsions, such as creams and lotions, as these are much more pleasing to apply than oil. The composition of most of these creams is similar to that of rose water ointment U. S. P. Such creams are alkaline and have a p_H of from 8 to 10. This alkalinity is necessary to bring about the proper emulsification of the fats and waxes with water.

Since it has been found desirable to make creams of acid reaction to conform to the normal acid reaction of the skin, it is necessary to use an emulsifying agent that will act in an acid medium. Cholesterol is one of the few effective agents in this respect. It is a natural constituent of the skin, constituting from 10 to 15 per cent of its lipid content. Cholesterol has a stabilizing influence on the emulsions present in dermal tissue, and this action tends to render the skin more or less impermeable to water.

Petrolatum because of its bland, inert nature is a particularly useful compound for protecting the skin from water and air. With cholesterol it can be readily emulsified even at an acid reaction. Such emulsions form the basis of some of the better creams marketed at the present time.

Since cholesterol is a natural constituent of the skin and possesses desirable properties as an emulsifier, it seemed of interest to ascertain experimentally what effect the addition of cholesterol to petrolatum would have on the function of the skin. Would the cholesterol be absorbed? Would it give rise to vasodilatation or vasoconstriction, and would it increase the cleansing action of the petrolatum emulsions?

One of the most important functions of the skin, which is readily measurable, is the regulation of body temperature through the transpiration of water. Would petrolatum applied to the skin decrease loss of water, and would cholesterol added to petrolatum influence that loss? The answer to this query proved interesting.

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4. Bulkley, L. D.: Principles and Application of Local Treatment in Diseases of the Skin, New York, Rebman Co., 1907, p. 53. Gardiner, F.: Brit. J. Dermat. **34**:297, 1922. White, R. P.: The Dermatergoses, or Occupational Affections of the Skin, ed. 4, London, H. K. Lewis & Co., Ltd., 1934, p. 29. Lane, C. G.: J. Indust. Hyg. **7**:446, 1925. Puech, A.: Arch. Soc. d. sc. méd. et biol. de Montpellier **12**:291, 1931.

EFFECT OF PETROLATUM ON LOSS OF WATER

Method.—The skin of the middle finger of the left hand was selected as the area to be used in this study because it could be enclosed readily in a small glass respiratory chamber. This arrangement is shown in figure 1.

Ten liters of air was drawn through this chamber by means of an aspirator bottle in thirty minutes. The air was drawn from the room through sulfuric acid to remove the moisture, then past the finger, then through weighed Bowen flasks containing sulfuric acid to remove the perspiration and finally into the aspirator

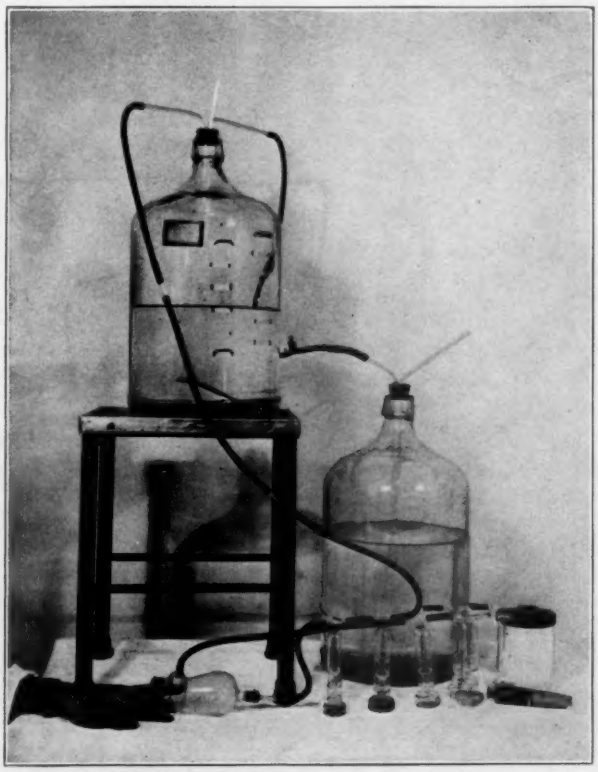

Fig. 1.—Apparatus used for measuring the amount of perspiration.

bottle. A definite area of 50 sq. cm. of skin was used each time. The room temperature was controlled as much as possible, and both the temperature and the barometric pressure were closely noted throughout the test. The volume of air was corrected to standard conditions of temperature and pressure.

The evaporation from the skin was measured at temperatures from 20 to 30 C. Below 20 C. the evaporation was slow, while at 30 C. active sweating began and there was a rapid rise in the rate of moisture given off from the skin.

The finger was prepared by being cleansed with soap and water, thoroughly rinsed with water and alcohol and dried. When the skin had come to equilibrium

in from thirty to forty minutes, a known amount of the mixture to be tested was placed on the prescribed area of skin and spread uniformly over the surface. Application of an excessive amount was carefully avoided.

Results.—The results of this experiment can best be shown graphically. The analytic figures obtained for five persons, namely, a boy of 16, two men of 28, a woman of 32, and a man of 47, were compared and averaged. The results for each person are concordant, and the divergence between the results for different persons at the same temperature was not great.

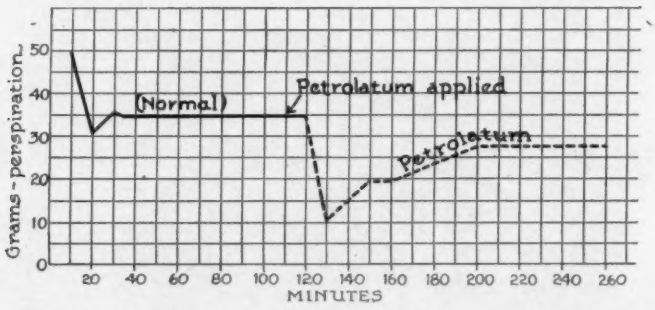

Fig. 2.—Graph showing the amount of perspiration excreted after application of petrolatum.

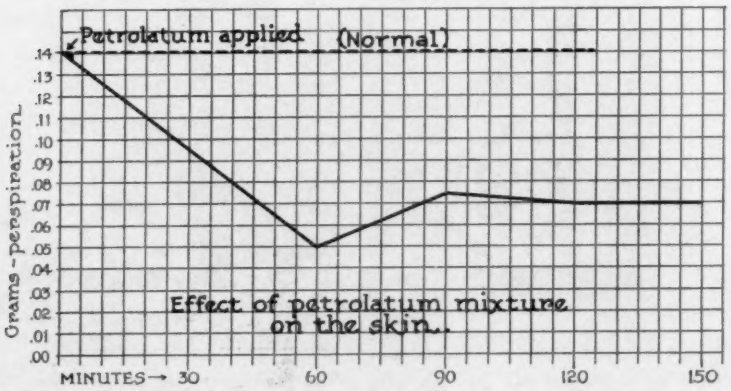

Fig. 3.—Graph showing the effect of application of a petrolatum mixture on the amount of perspiration excreted.

There was a preliminary decrease in the amount of water removed from the skin, as shown by figure 2, when the perspiration was measured in ten minute intervals. Apparently the original amount of water was moisture condensed on the skin and readily given off, since in thirty minutes or less the true normal value was reached. When petrolatum or any mixture containing petrolatum was added a new level was reached after from thirty to sixty minutes elapsed.

When the graph was plotted from results obtained from thirty minute periods the curve obtained was as that shown in figure 3.

The rubbing of an emulsion of petrolatum caused an immediate decrease in the water lost from the skin. At the end of the first half-hour this fell from the normal rate of loss for the untreated skin to a point above the average for the treated skin. In the next half-hour it fell to a point below the average; then it returned to the average figure, at which it remained. Hence it was necessary to wait for an hour after treating the skin before measurements of the true effect

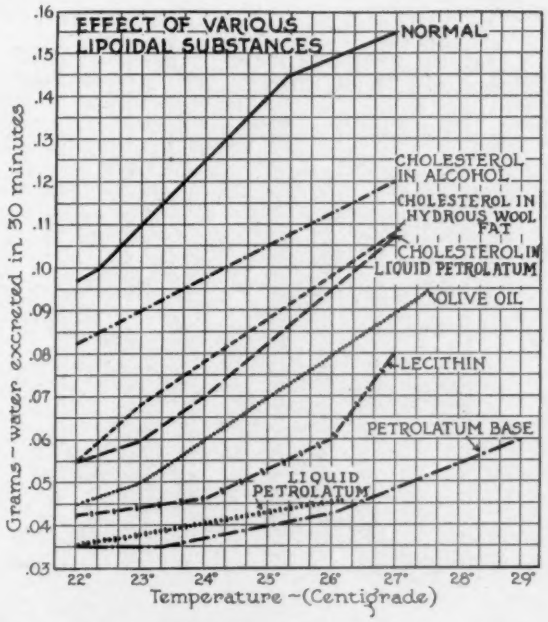

Fig. 4.—Graph showing the effect of application of petrolatum, liquid petrolatum, lecithin, olive oil and cholesterol on the amount of perspiration excreted.

of the petrolatum mixture on loss of water were made, unless continuous observations were made for at least four periods.

The water excreted by the skin is considered by Loewy and Wechselmann [5] to be derived from two sources. One source is the interstitial water of the cutaneous cells. This water is thought to pass to the surface and to be lost by evaporation. The other source is the sweat gland, the water of the sweat coming principally from the capillaries and underlying skin tissue. At temperatures below 20 C. the sweat glands are normally inactive and the ducts are closed. The moisture which

5. Loewy, A., and Wechselmann, W.: Virchows Arch. f. path. Anat. **206**:79, 1911.

comes from the skin at this temperature is almost wholly derived from the cutaneous tissue. At temperatures above 30 C. the sweat glands begin to secrete, and as the temperature rises more and more water is lost as sweat. When this secretion of water is plotted against temperature it describes an inverted parabola up to the point where the temperature is too high for body function. In this study, in order to decrease or avoid the effect of perspiration, results were obtained only for a temperature range of from 22 to 30 C.

Figure 4 shows the effect of petrolatum, liquid petrolatum, cholesterol, lecithin and olive oil on loss of water in treated as compared

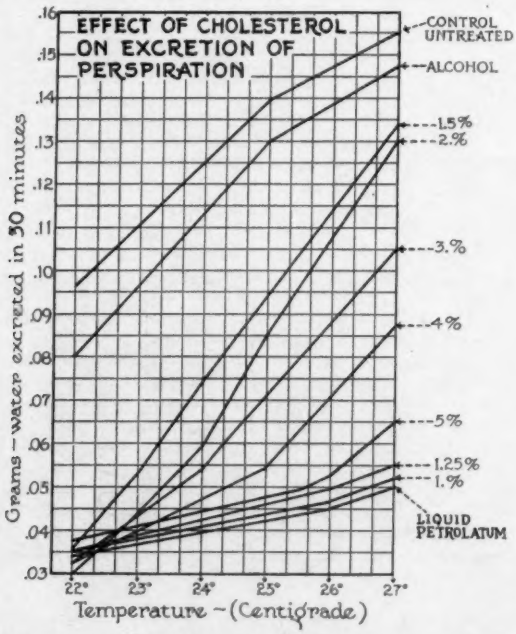

Fig. 5.—Effect of cholesterol on excretion of perspiration.

with the loss in untreated skin. All these substances caused a marked diminution of loss of water, the effect of cholesterol being the least and that of petrolatum the greatest.

Figure 5 shows the effect that varying amounts of cholesterol added to the petrolatum have on loss of water. Less than 1 per cent of cholesterol added to petrolatum had little, if any, effect while amounts above 1 per cent had a marked effect, the maximum effect being obtained when 1.5 per cent of cholesterol was added. When the amount of cholesterol was increased the effect gradually declined until when the concentration was 5 per cent there was little effect over that of petrolatum alone. It is evident that the concentration of cholesterol in petrolatum is important.

When the effects of various concentrations of cholesterol on the loss of water from the skin at a temperature of 25 C. were charted, the differences were evident. These differences are shown in figure 6.

The effect of other lipids, particularly the fatty acids, placed on the skin were compared with the effects of cholesterol and petrolatum. Capric, lauric and myristic acids are typical short chain saturated fatty acids; oleic acid is an unsaturated acid, and lactic acid is a hydroxy fatty acid. All these acids are normal constituents of the skin and sweat. In figure 7 the effect at 25 C. is shown. Lauric acid, lactic acid and myristic acid, like petrolatum, tended to reduce the loss of water, while the effect of oleic acid was slight, being even less than that of cholesterol.

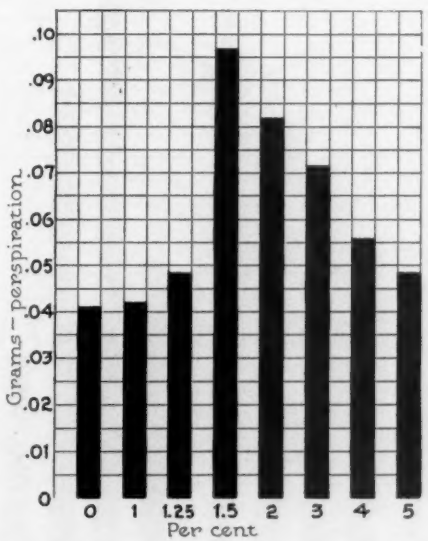

Fig. 6.—Effect of various concentrations of cholesterol on the amount of perspiration excreted.

EFFECT OF CHOLESTEROL ON CLEANSING WITH PETROLATUM

Emulsions of oils and emulsions of petrolatum are used both for softening harsh and scaly skins and for cleansing skins on which soap and water cannot be used without causing irritation. The petrolatum in such emulsions is soothing and protective but materially detracts from true cleansing by leaving an unabsorbed residue of nonsaponifiable matter on the skin.

Since cholesterol when dissolved in petrolatum was shown to have the property of increasing the permeability of this film to perspiration, it was thought that it might increase the cleansing activity of petrolatum also.

In order to measure the cleansing effect it was first necessary to develop an effective method for determining quantitatively the cleansing action. The method used was simple yet satisfactory.

Method.—A measured area of skin on the flexor surface of the forearm was shaved and washed with neutral soap and water, rinsed thoroughly first with water and then with alcohol and dried. One hour was allowed to elapse for the skin to become normal before determinations were made. One milligram of finely divided carbon (lamp black) for each square centimeter was then rubbed into the skin as evenly as possible.

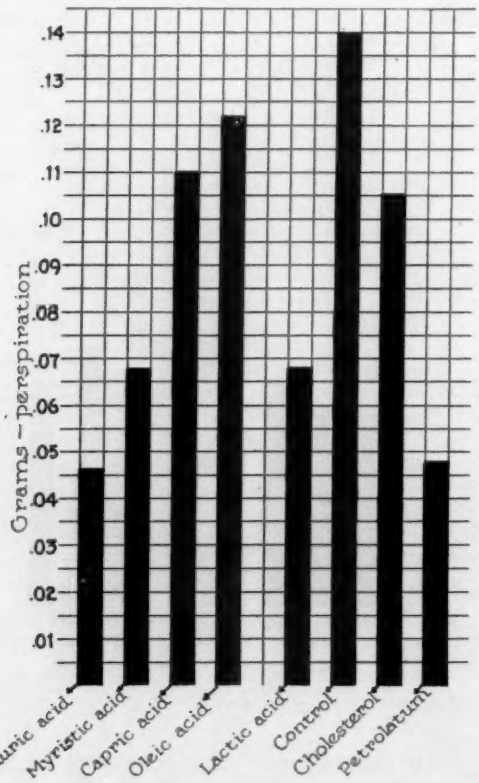

Fig. 7.—Effects of lipids on the amount of perspiration excreted.

For the cleansing 0.5 Gm. of the petrolatum mixture was rubbed on the cleansed skin by means of a small horn spatula that could be weighed with the container so that an accurate weight of the petrolatum could be obtained by subtraction. This mixture was then applied with a constant number of strokes in each trial.

The cleansing mixture having been applied, it was removed by rubbing the skin with small pieces of cotton. The cotton was then extracted with chloroform to remove the petrolatum and cholesterol and the insoluble material weighed as "dirt." This was done in the following way:

Absorbent cotton was thoroughly extracted with chloroform and kept over sulfuric acid until used. On a microbalance sensitive to 0.01 mg., exactly 250 or

300 mg. of this cotton was weighed out and divided into a number of small pieces. These pledgets were then held in forceps and rubbed one after another over the measured area of skin until four or five of them failed to show an increase in weight. These pledgets, constituting the whole original weight of cotton, were then placed in the desiccator for twenty-four hours to remove all moisture; then they were weighed. The increase in weight consisted of the petrolatum mixture removed from the skin, carbon, exfoliated skin and other extraneous matter.

The cotton was then extracted with chloroform to remove all lipid substances and the petrolatum. Four extractions were made, which were sufficient, as shown by control extractions. The chloroform was evaporated from a tared weighing bottle, and after the solvent was thoroughly removed the residue was weighed.

TABLE 1.—*Results with Cholesterol-Free Mixture*

Trial	Weight of Pledget, Gm.	Weight of Carbon, Gm.	Weight of Pledget Plus Material Removed, Gm.*	Weight of Material Removed, Gm.*
1	0.5	0.03	0.5355	0.0355
2	0.5	0.03	0.5410	0.0410
3	0.5	0.03	0.5438	0.0438
4	0.5	0.03	0.5272	0.0272
Average	0.5	0.03	0.5355	0.0355

Excess weight:* 0.0355 — 0.0300 = 0.0055 Gm.

* The figures represent the amounts after chloroform extraction.

TABLE 2.—*Results with Mixture Containing Cholesterol*

Trial	Weight of Pledget, Gm.	Weight of Carbon Applied, Gm.	Weight of Pledget Plus Material Removed, Gm.*	Weight of Material Removed, Gm.*
1	0.5	0.03	0.5980	0.0980
2	0.5	0.03	0.5955	0.0955
3	0.5	0.03	0.5925	0.0925
4	0.5	0.03	0.5950	0.0950
Average	0.5	0.03	0.5950	0.0950

Excess weight:* 0.095—0.03=0.065 Gm.

* The figures represent the amounts after chloroform extraction.

After extraction the pellets were again weighed, and the increase in weight of the cotton was considered to represent the extraneous matter removed from the skin.

Results.—The results obtained with a cholesterol-free petrolatum mixture on skin that had been prepared with carbon black as described are shown in table 1. An average amount of 0.0355 Gm. of material was obtained, or 0.0055 Gm. more than the carbon used. In table 2 are given the figures for the results of cleansing with petrolatum to which 2 per cent of cholesterol had been added. By this method 0.0950 Gm. of insoluble matter was removed from the skin, or 0.0650 Gm. more than the added carbon. It is seen from these tables that there was a

marked difference in the amount of material removed from the skin when cholesterol was added to the petrolatum cleansing mixture. To what was this increased weight due? Evidently to exfoliated epidermis and possibly to deep-lying excretory matter in the ducts.

In table 3 are shown the results of the use of cholesterol-free petrolatum on skin to which no carbon had been added. Of the 0.5 Gm. of petrolatum used, 0.3 Gm. of total material was removed, of which 0.295 Gm. was soluble in chloroform and only 0.005 Gm. was extraneous matter.

TABLE 3.—*Results with Cholesterol-Free Mixture*

Trial	Weight of Cholesterol-Free Mixture, Gm.	Weight of Pledget, Gm.	Weight of Pledget and Total Material Picked Up, Gm.	Weight of Total Material Picked Up, Gm.	Weight of Extraneous Material (Dirt, Keratin), Gm.	Weight of Petrolatum-Soluble Material Recovered, Gm.
1.....	0.500	0.300	0.600	0.300	0.0050	0.2950
2.....	0.500	0.300	0.596	0.296	0.0040	0.0920
3.....	0.500	0.300	0.590	0.290	0.0040	0.2860
4.....	0.500	0.300	0.605	0.305	0.0050	0.3000
5.....	0.500	0.300	0.610	0.310	0.0060	0.3040
6.....	0.500	0.300	0.600	0.300	0.0050	0.2950
7.....	0.500	0.300	0.603	0.303	0.0060	0.2970
8.....	0.500	0.300	0.604	0.304	0.0060	0.2980
9.....	0.500	0.300	0.600	0.300	0.0047	2.2953
10.....	0.500	0.300	0.593	0.293	0.0040	0.2890
Average....	0.500	0.300	0.600	0.300	0.0050	0.2950

TABLE 4.—*Results with Mixture Containing 2 Per Cent of Cholesterol*

Trial	Weight of 2 per Cent Cholesterol Mixture, Gm.	Weight of Pledget, Gm.	Weight of Pledget and Total Material Picked Up, Gm.	Weight of Total Material Picked Up, Gm.	Weight of Extraneous Material (Dirt, Keratin), Gm.	Weight of Fats, Fatty Acids, and Cholesterol, Gm.
1.....	0.500	0.520	0.489	0.239	0.069	0.170
2.....	0.500	0.250	0.485	0.235	0.065	0.170
3.....	0.500	0.250	0.490	0.240	0.066	0.176
4.....	0.500	0.250	0.480	0.230	0.070	0.160
5.....	0.500	0.250	0.472	0.222	0.060	0.162
6.....	0.500	0.250	0.498	0.248	0.070	0.178
7.....	0.500	0.250	0.485	0.235	0.065	0.170
8.....	0.500	0.250	0.485	0.235	0.066	0.169
9.....	0.500	0.250	0.484	0.234	0.068	0.166
10.....	0.500	0.250	0.486	0.236	0.067	0.169
Average.....	0.500	0.250	0.485	0.235	0.065	0.170

In table 4 the results of tests with petrolatum containing 2 per cent cholesterol are shown. In this experiment 0.235 Gm. was picked up, of which 0.065 Gm. was exfoliated keratin and dirt and only 0.17 Gm. was chloroform-soluble material. Hence insoluble material can be removed from the skin by cleansing with petrolatum even after it has been thoroughly cleansed with soap and water, and the results in table 5 show that the cleansing action was increased by the addition of cholesterol,

the mixture to which cholesterol was added removing twelve times as much dust as that in which petrolatum was the only cleansing agent.

Along with this increased cleansing action, and evidently connected with it, was an apparently greater absorption by the skin of the petrolatum mixture that contains cholesterol, as shown in table 6. This may mean either that the petrolatum is emulsified more finely and clings to the skin better or that it can penetrate deeper into the sweat and sebaceous ducts. The increase in material removed amounted to 25 per cent.

TABLE 5.—*Results of Cleansing*

	Mixture Containing Cholesterol, Gm.	Cholesterol-Free Mixture, Gm.
Total material picked up	0.235	0.300
Weight of fats, fatty acids	0.170	0.295
Weight of dirt and keratin	0.065	0.005
Difference in amount of dirt (0.065—0.005)	0.06 Gm.	
Ratio of efficiency (0.060÷0.005)	1:12	

TABLE 6.—*Results of Cleansing*

	Weight of Material Used, Gm.	Weight Recovered, Gm.	Fatty Material Absorbed	
			Amount, Gm.	Percentage
Cholesterol-free mixture	0.5	0.295	0.205	41
Mixture containing cholesterol	0.5	0.170	0.330	66

TABLE 7.—*Results of Cleansing*

	Weight of Carbon Added, Gm.	Weight of Material Recovered, Gm.	Carbon Recovered, Gm.	No Carbon Used; Weight of Extraneous Material, Gm.
Petrolatum alone	0.0300	0.0355	0.0305	0.0050
Petrolatum with added cholesterol	0.0300	0.0905	0.0300	0.0650

Since the amount of insoluble matter which was removed from the skin was greater than the amount of carbon which was rubbed into it, this insoluble matter must necessarily have come from the skin, and if conditions were the same in both experiments save for the added carbon, it should be possible to subtract the amounts obtained in experiments in which no carbon was used from those obtained in experiments in which it was used, and the difference should be the amount of carbon. That such is the case is shown in table 7. Hence, petrolatum mixtures do

remove surface contamination, but the addition of cholesterol makes it possible to remove deep-seated extraneous material as well as surface material.

COMMENT

From the results of the experiments presented here it is evident that cholesterol when mixed in proper proportions with petrolatum in some unknown way renders petrolatum much more "compatible" with the skin. Cholesterol reduces the effect of petrolatum in decreasing the amount of water lost from the skin and allows such a mixture to come into more intimate contact with the cutaneous tissue, hence making the skin apparently more penetrable and more easily cleansed. This property seems to reach a maximum when from 1.5 to 2 per cent of cholesterol is incorporated with the petrolatum.

There is no apparent explanation for this phenomenon unless the phenomena noted by Spranger [6] are concerned. Spranger has shown that varying the ratio of cholesterol to lecithin affects the type of emulsion found in red blood cells and other tissues and profoundly affects the ability of such tissues to hold water. Such a relationship may be responsible for the difference noted.

SUMMARY

In the experiments reported here it was observed that:

Various lipoidal substances when placed on the skin lower the rate of loss of water by the skin. Of these, petrolatum lowered the normal rate at 25 C. from 140 mg. per thirty minutes per fifty square centimeters of skin of the finger to 40 mg. under the same conditions.

Cholesterol when added to the petrolatum in amounts from 1 to 5 per cent showed a marked effect in changing the inhibitory effect which petrolatum had on perspiration. Amounts of cholesterol from 0 to 1.25 per cent had little effect. Amounts of 1.5 and 2 per cent had a marked effect, and the effect decreased as larger amounts of cholesterol were added.

The addition of from 1.5 to 2 per cent of cholesterol rendered petrolatum more "compatible" with the skin and improved definitely the cleansing action of the petrolatum. The addition of cholesterol to petrolatum increased its cleansing efficiency by 1,200 per cent, as measured by its effect in removing dirt and keratin.

When 2 per cent cholesterol was added to petrolatum the mixture was apparently absorbed, or penetrated the skin to a greater extent (33 per cent) than did the cholesterol-free petrolatum.

6. Spranger, W.: Biochem. Ztschr. **208**:164, 1929.

CUTANEOUS ACTINOMYCOSIS

REPORT OF TWO CASES

HARRY A. SALZMANN, M.D.*

AND

ISRAEL KESSLER, M.D.

PHILADELPHIA

Since Israel [1] first described actinomycosis in man in 1877 several thousand cases have been reported in the international literature.[2] Majocchi [3] in 1882 was the first to report a case of actinomycosis of the skin occurring in a young woman. Primary actinomycosis of the skin, however, continues to be an exceedingly rare condition. Rauber [4] in 1925 collected fifty-six cases reported in the continental literature, and Klaber [5] in 1934 could find only ten additional cases of primary cutaneous actinomycosis in the world literature.

Because of the rareness of actinomycosis of the skin we thought it worth while to report two cases recently observed in the wards of the Mount Sinai Hospital.

REPORT OF CASES

CASE 1.—A man aged 66, a tailor, was first seen in the outpatient department of the surgical service on April 9, 1934. He complained of a small painless lump just below the xiphoid process which he had first noticed about fifteen years before. Six weeks before he presented himself at the clinic he had an infection of the upper portion of the respiratory tract associated with spasmodic attacks of coughing; at the same time the epigastric mass increased somewhat and became tender to touch. It was incised, and a small amount of blood was obtained; the secretion from the wound subsequently became purulent.

The patient was admitted to the hospital. The personal and the family history were irrelevant.

Physical examination revealed a short, somewhat undernourished man with many broken and decayed teeth. Gingivitis and poor oral hygiene were noted.

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* From Surgical Service II and Medical Service II of the Mount Sinai Hospital.

1. Israel, cited by Baskin, N. J.: Primary Actinomycosis of the Skin, J. A. M. A. **78**:1367-1368 (May 6) 1922.

2. Sanford, A. H., and Voelker, M.: Actinomycosis in the United States, Arch. Surg. **11**:809-841 (Dec.) 1925.

3. Majocchi: Studi ematologici nei lebbrosi, Riv. clin. di Bologna, 1882, p. 599.

4. Rauber, A.: Zur Kenntnis der primären Hautaktinomycose, insbesondere der Genitalgegend, Acta dermat.-venereol. **6**:493-504, 1925.

5. Klaber, R.: Primary Cutaneous Actinomycosis, Brit. J. Dermat. **46**:12-19, 1934.

The remaining observations were unimportant, except for the presence in the midline of the epigastric region of a small incision exuding thin serous pus. The incision was surrounded by an indurated raised area about 10 by 12 cm. in diameter which seemed to be connected with the lower end of the sternum. The overlying skin was red and inflamed, and portions of the area were slightly fluctuant. The temperature on admission was 99 F. A blood cell count showed 16,200 white cells; there were 89 per cent polymorphonuclears. Serologic tests, chemical examination of the blood and urinalysis gave normal results. A diagnosis of secondarily infected omentocele was made. Treatment consisted of rest in bed and hot applications; as a result of this the indurated area became more fluctuant. Incision, the area being under local anesthesia, yielded a considerable amount of pus. A few days later a second incision was made somewhat below the first, and another collection of pus was emptied. The temperature became normal. A roentgenogram of the abdomen showed no abdominal involvement. The patient was discharged on April 28 and instructed to return to the surgical division of the dispensary.

The revised diagnosis was abscess of the abdominal wall and small umbilical hernia.

On May 16 while the wound was being dressed in the outpatient department a few suspicious granules were expressed from the original incision. A diagnosis of actinomycosis was made, and this was confirmed by a smear which showed filaments of Actinomyces. After this the patient was treated with injections of sodium iodide, three injections being given each week. In addition he was given large doses of saturated solution of sodium iodide by mouth, and roentgen treatment was instituted. The lesions began to show some evidence of improvement. On June 1, while the wound was being dressed, a fish bone about 4 cm. in length was expressed from the upper incision. When he was questioned the patient stated that he had swallowed a fish bone about twenty or twenty-five years before and that this bone had never been recovered. Roentgenograms of the gastro-intestinal tract showed no organic lesions of the stomach or duodenum. The induration of the abdominal wall diminished markedly, and the wounds healed, leaving residual sinuses from which small amounts of thin serous pus continued to drain. Smears were positive for filaments of Actinomyces on several occasions, but cultures continued to remain negative for Actinomyces.

The patient did not return to the clinic for about six months, and on March 18, 1935, he reappeared. He had lost about 100 pounds (45.4 Kg.) since his first admission. He was readmitted to the hospital on March 28, 1935, the chief complaints being of loss of weight, anorexia, belching and pain, especially at night, over the lower portion of the costal region on the right side. During this stay in the hospital his temperature was septic, reaching as high as 103 F.; the pulse and the respiratory rate were also slightly increased. Physical examination revealed marked emaciation, some dulness in the upper portion of the chest on the right, and normal breath sounds. A hard tender mass was felt in the upper right quadrant of the abdomen at the site of the left lobe of the liver. There was a small draining sinus in the epigastrium, and another was present below the umbilicus. Examination of the blood showed secondary anemia and leukocytosis, the number of leukocytes being 19,400. There were 88 per cent polymorphonuclears. Repeated smears from the secretions draining from the sinuses failed to reveal Actinomyces. Gastric analysis showed enzymes to be present, but there was an absence of free hydrochloric acid. The icteric index was 7.8. In a

galactose test of hepatic function 1 Gm. of galactose was recovered after six hours. Roentgenograms of the gastro-intestinal tract revealed a constant irregularity of the pyloric end of the stomach; the gastric rugae in this region appeared normal, and peristaltic waves were seen to course over this area. No test of the six hour retention of the barium meal was made. The results of the roentgen examination indicated that we were dealing with an inflammatory lesion of the stomach. An electrocardiogram showed evidence of myocardial degeneration.

Fig. 1 (case 1).—Multiple sinuses and nodules of actinomycosis on the abdominal wall.

The patient's clinical course continued steadily downhill, and he died on April 30.

Autopsy.—Dr. David R. Meranze performed the autopsy and examined the pathologic specimens.

A sinus from which creamy greenish pus could be expressed was seen in the epigastric region. The skin and fascia in the upper portion of the abdomen were

infiltrated with purulent material and showed a marked inflammatory reaction. The infiltration extended through the entire thickness of the abdominal wall and farther between the leaves of the diaphragm. The latter was thickened and firmer than normal. The spleen was about one and one-half the normal size and weighed 320 Gm.; its external surface was smooth; its parenchyma showed marked congestion.

The stomach was distended in the pyloric region; the latter had become adherent to the base of the liver; as a result the pyloric region had been pulled upward and laterally and had become distorted. This probably accounted for the distortion noted in the roentgenograms. The serosa in this region was puckered and inflamed, but evidently the formation of massive adhesions had effectively prevented the extension of the process beyond the confines of the liver.

The liver showed perihepatic adhesions, widespread destructive actinomycotic involvement, cloudy swelling and fatty changes. The cut surface showed abscess nodules and the characteristic honeycombing of actinomycosis.[6]

The liver and the subdiaphragmatic area of the right lobe were completely walled off from the rest of the abdominal cavity by adhesions which had melted together and distorted the intestines and omentum at this point. The liver was larger than normal. The medial half of the right lobe beneath the site of the adhesions described was replaced by a destructive process which had produced in one area a large abscess cavity measuring 7 cm. in diameter. This cavity lay in the upper medial half of the right lobe. Its inner walls were ragged and grayish green. The cavity was incompletely filled with a necrotic grayish material. The outer outlines of the cavity were not sharply defined, the surrounding liver tissue being involved in an inflammatory reaction. Extending downward and to the left of the abscess and involving the entire height of the liver in this medial half of the right lobe down to its base was a light yellowish brown firm inflammatory process which had honeycombed the liver tissue with a series of contiguous abscess cavities separated from each other by fibrous bands. The involvement had not penetrated to the anterior or posterior surfaces of the liver but occupied almost the entire thickness of the organ in this region. The remaining, apparently uninvolved, liver tissue was firm and dark reddish brown. The gallbladder and the biliary passages were normal.

Comment.—This case presents an interesting problem in differential diagnosis between primary malignant degeneration either in the stomach or in the liver and the advanced stage of actinomycotic infection. Without the previous history of infection with a ray fungus malignant degeneration would, of course, have been the more likely diagnosis in the case of a man of advanced age presenting the signs and symptoms described.

In either primary or secondary abdominal localization actinomycosis may produce intimate adhesions between the intestinal coils and other abdominal viscera. Actinomycosis may produce metastatic abscesses and adenitis which are due to pathogenic bacteria that have invaded the

6. Blain, A. W.: Primary Actinomycosis of the Stomach, J. A. M. A. **100**: 168-169 (Jan. 21) 1933.

organism at the same time as the fungus. Aribaud [7] expressed the belief that actinomycetes are too large to pass through the lymphatics; Israel, however, was of the opinion that extension by way of the lymphatics, though rare, is possible. Pawlowsky and Maksoutow have shown experimentally that extension by that route is possible.

Extension of actinomycosis may take place by: (1) continuity, (2) venous extension, (3) arterial extension and (4) lymphatic extension.

CASE 2.—C. G., a woman aged 18, was admitted to the hospital on Jan. 8, 1936, because of a tender, nonpainful mass in the right lower quadrant of the abdomen of about six days' duration. A similar swelling in the left lower quadrant had appeared in June 1935; this had been incised at the patient's home and was still draining.

The past history was irrelevant except for the fact that in September 1934 the patient had suffered from a condition diagnosed as "intestinal grip" which had been characterized by constipation, asthenia, fever, myalgia and pain in the right lower quadrant. Eight months after recovering from this attack the patient noticed the aforementioned swelling in the left lower quadrant. The clinical course during the patient's stay in the hospital was marked by mild elevation of temperature. The blood cell count on admission revealed a secondary anemia and a leukocytosis, the number of leukocytes being 21,000. There were 88 per cent polymorphonuclears. The urine showed a few white and red blood cells and a few coarse granular casts. Serologic tests were negative. The urea nitrogen content and the sugar content of the blood were normal.

Physical examination showed that the patient was fairly well nourished; the tonsils were diseased; there was a faint mitral systolic murmur; in the right lower quadrant of the abdomen was a mass about the size of a grapefruit; this appeared fixed to the abdominal wall and was firm except at the apex, which was reddish and fluctuant. A small dried-up sinus surrounded by an indurated area was seen in the left lower quadrant. A diagnosis of abscess of the abdominal wall of unknown etiology was made.

On January 10 the abscess in the right lower quadrant was incised and a large quantity of grumous material was obtained. The abscess cavity was drained. On January 16 the old sinus on the left side was reopened, but no evidence of involvement was found. On January 18 the abscess on the right side was again explored; culture showed hemolytic staphylococci. Neither the left nor the right sinus seemed to penetrate beyond the level of the peritoneum. Injection of iodized poppy-seed oil 40 per cent confirmed this supposition and failed to show any demonstrable connection between the two abscesses.

Histologic examination of material obtained when the abscess on the right side was first incised showed fat tissue widely infiltrated by inflammatory cells. In one area there were a few suspicious structures bearing a resemblance to a fungus. After the patient had been discharged from the hospital, on January 20, her family physician discovered sulfur granules in the pus draining from the incision on the right side. Microscopic examination revealed the arrangement typical of the ray fungus. The patient was given large doses of iodides by mouth and a series of roentgen treatments. After the roentgen treatments were given both sinuses healed. The patient is apparently well at the time of writing.

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7. Aribaud, G.: The Hepatic Localization of Actinomycosis, Internat. Clin. 3:50-58, 1921.

DEFINITION

Lord [8] defined actinomycosis as follows: Actinomycosis is an infection characterized by the usual presence of lesions composed of abundant granulation tissue surrounding multiple areas of abscess formation and by the presence within the abscesses of the specific infecting agent in compact colonies composed of branching gram-positive filamentous anaerobic organisms with radially disposed club-bearing filaments.

ETIOLOGY

The etiology of actinomycosis of the skin is usually obscure; as a rule the condition develops secondarily to lesions of the more deeply

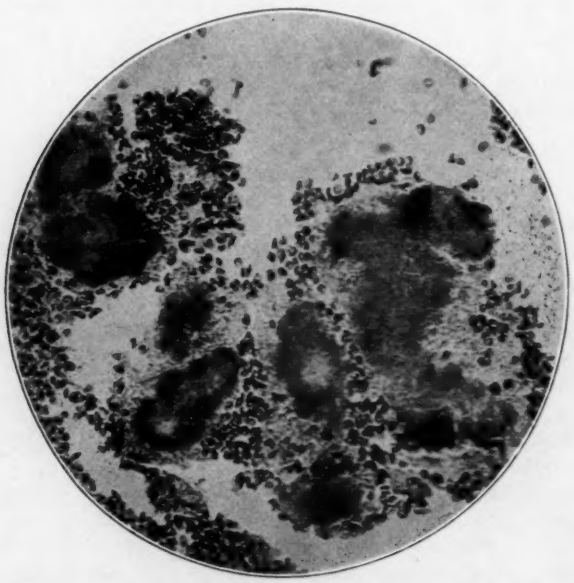

Fig. 2 (case 2).—Section from the skin of the abdominal wall showing actinomycotic nodules, × 400.

situated organs—the bones, lung or intestines. The lower jaw and the neck are most commonly affected.[9] In primary actinomycosis of the skin there is usually a history of trauma causing a breach in the epithelium, which then becomes contaminated by contact with vegetable matter or other material containing the spores of Actinomyces.[10] A foreign body such as a splinter of wood may also play a part in the introduction

8. Lord, F. T.: The Etiology, Pathogenesis, and Diagnosis of Actinomycosis, M. Clin. North America **16**:829-844, 1933.

9. Merian, Louis: Ein Fall von primärer Hautaktinomykose, Dermat. Wchnschr. **54**:45-49, 1912.

10. Klaber.[5] Merian.[9]

of this fungus into the body. Recent workers (Colebrook [11]) have found Actinomyces bovis in the tonsils of healthy persons and in carious teeth. The primary traumatic lesion may heal rapidly and be forgotten when the clinical signs of actinomycosis of the skin appear. According to Rauber,[4] the fungus is capable of reaching the skin from some latent internal focus by a hematogenous route or without leaving any demonstrable traces behind may break through a mucous membrane, and after a prolonged asymptomatic wandering about it is capable of setting up the first inflammatory phenomena somewhere in the skin years later.[12] Actinomyces bovis is always associated with other bacteria. Even in cases in which the infection seems to be pure the small Bacillus actinomycetum-comitans is always present.[12b] Fildes [13] has pointed out that as the associated bacteria in tetanus reduce the oxygen tension of the tissues to a limit which will allow the anaerobic spores to germinate, so the associated organisms in actinomycosis may carry out a similar function in preparing the tissues for invasion of the fungus.

DIAGNOSIS

The clinical appearance of cutaneous lesions of actinomycosis varies greatly in detail, but in all cases the lesion is granulomatous and relatively painless. Monestié [14] described two clinical types of lesions: the gummatous and the anthracoid.

In the gummatous form, which is the most common, there are cavities resembling tuberculous or syphilitic gummas containing a large amount of pus, and each cavity presents one or more sinuses. At first the overlying skin appears pink, and gradually there develops a red or deep wine color; then the lesion becomes thin and shiny, and sinuses begin to appear. These sinuses may be multiple, or new sinuses may appear as the old ones close. Frequently an isolated sinus may appear at some distance from the primary focus. The lesion may extend in the deep subcutaneous tissues only to break out in a suppurative center at some distant point. The characteristic granules need not necessarily be present or demonstrable in the actinomycotic pus.[15] The number of these granules is often small, and their discharge may be intermittent or altogether absent.[5]

11. Colebrook, cited by Bates.[12b]

12. (*a*) Ronchese, Francesco: Primary Actinomycosis of the Skin, Arch. Dermat. & Syph. **20**:1-9 (July) 1929. (*b*) Bates, L.: Actinomycosis, Lancet **1**: 571-573, 1933.

13. Fildes, P.: Tetanus: Positive Limit of Oxidation-Reduction Potential Required for Germination of Spores of B. Tetani in Vitro, Brit. J. Exper. Path. **10**:151-175, 1929; Tetanus: Oxidation-Reduction Potential of Subcutaneous Tissue Fluid of the Guinea-Pig, ibid. **10**:197-204, 1929.

14. Monestié, F.: Actinomycosis of the Skin, Internat. Clin. **3**:73-82, 1921.

15. Gammel, J. A.: Actinomycosis Without Granules, Arch. Dermat. & Syph. **29**:287-297 (Feb.) 1934. Ronchese.[12a]

Monestié [14] gave the following criteria: When a cutaneous lesion presents a wine color with slaty or bluish red spots about the size of a lentil scattered over it and the spots (which were first described by Derville) are semitransparent, giving the impression that there is a gelatinous substance underneath the epidermis, and, furthermore, when the opening of a sinus later appears at the site of the spots, an almost certain diagnosis of cutaneous actinomycosis can be made. The actinomycotic lesions of the skin usually appear as localized dusky red swellings or deep fluctuating nodules bearing one or more sinuses exuding thin foul-smelling pus.[16]

The anthracoid form of cutaneous actinomycosis is less common; in this form of the local lesion, which looks like a sieve,[14] a large number of sinuses which give issue to little pus are present.

The diagnosis of cutaneous actinomycosis can seldom be made on the basis of the signs and symptoms alone; final diagnosis depends on microscopic observation of the sulfur granules and actinomycotic filaments; positive results of culture, transmission of the disease to experimental animals and positive results of biopsy are pathognomonic.

TREATMENT

The efficacy of iodine, which was long regarded as almost specific in treatment of actinomycosis, has begun to be questioned by many observers.[17] However, most clinicians continue to use it in conjunction with other measures. Berberich recommended the concomitant administration of large doses of calcium to patients who do not tolerate iodine alone. Copper and other metals such as arsenic have been used with apparent benefit in some cases.

Negroni [18] obtained a cure in five cases of actinomycosis of the jaw using a vaccine prepared from A. bovis and Actinomyces asteroides. Others have also reported encouraging but by no means uniformly good results from the use of vaccine. Payr [19] recommended the use of autovaccine prepared from cultures of the strain of fungus recovered from

16. Archer, V. W., and Barker, W. A.: The Therapy of Actinomycosis, Am. J. Roentgenol. **30**:508-514, 1933.

17. (*a*) Boys, C. E.: Actinomycosis Primary in Ovary: Report of a Case, J. Michigan M. Soc. **31**:453-455, 1932. (*b*) Epstein, N., and Schoenholz, P.: Actinomycosis: Report of Cases, California & West. Med. **30**:395-399, 1929. (*c*) Wangensteen, O. H.: Actinomycosis of the Thorax with Report of a Case Successfully Operated Upon, J. Thoracic Surg. **1**:612-636, 1932.

18. Negroni, P.: Vaccine Treatment of Actinomycosis, Rev. argent de dermat. **16**:45, 1932.

19. Payr, E.: Diagnosis and Treatment of Actinomycosis, München. med. Wchnschr. **80**:1001-1003 (June 30) 1933.

the patient's pus. Trauner [20] in 1931 suggested the use of extracts prepared from the lymph nodes of horses or of oxen for wound dressings, instillation into the fistulas, and interstitial injection into diseased areas. He reported favorable results in seven cases in which this method was used. Kotanyi [21] reported five cures by this method in 1934.

Treatment of actinomycosis by roentgen radiation, which was first used by Harsha in 1903, is of great value in some cases. Wangensteen [17c] expressed the belief that roentgen radiation has a definite place in the treatment of superficial forms of actinomycosis but that it fails in the deeper types. Engelstadt [22] ardently advocated roentgen therapy and claimed that failures in cases of abdominal involvement are due to faulty technic. He recommended protracted administration of fractional doses of hard strongly filtered rays. Harrison [23] concurred in this opinion, and it is gradually being adopted by most supporters of roentgen therapy.

Surgical treatment, consisting of drainage with liberal excision of diseased tissue, is also of great value. In most cases early surgical intervention to establish drainage and liberal excision of diseased tissue together with administration of large doses of iodides and, when necessary, protracted administration of fractional doses of radiation suffice in the treatment of cutaneous actinomycosis. Vaccines and lymphatic extracts may also be tried in conjunction with these more established methods.

SUMMARY

Primary cutaneous actinomycosis is a comparatively rare form of actinomycotic disease.

Two cases are reported. In case 1 the disease was complicated by metastases to the liver, and the patient died. In case 2 recovery followed the institution of drainage and roentgen therapy.

Primary actinomycosis of the skin, in the absence of complicating metastatic lesions, may be treated successfully by drainage and protracted administration of fractional doses of radiation.

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20. Trauner, F.: Actinomycosis: Novel Therapy, in Graham, E. A.: General Surgery, Practical Medicine Series, Chicago, The Year Book Publishers, Inc., 1931, p. 83.

21. Kotanyi, E.: Five Cured Cases of Actinomycosis, Ztschr. f. Stomatol. **32**:1170-1177, 1934.

22. Engelstadt, R. B.: Radium Treatment for Abdominal Actinomycosis, Norsk mag. f. lægevidensk. **94**:759, 1933; abstr., J. A. M. A. **101**:964 (Sept. 16) 1933.

23. Harrison, R. S.: Radiation Treatment of Actinomycosis, Röntgenpraxis **6**:180-184, 1934.

Minor Notes

TREATMENT OF SCABIES WITH BENZYL BENZOATE

LEON GOLDMAN, M.D., CINCINNATI

For a number of years, application of benzyl benzoate has been used for treatment of scabies in Denmark, replacing the treatment with sulfide ointment designated in America as the so-called Danish treatment. Benzyl benzoate is also becoming popular on the Continent at the present time. The distinct advantages of this treatment are that the applications are odorless and non-irritating to the skin and that only one day of treatment is required. I have used this treatment in a few cases of scabies in which sulfur ointment had previously been used and in which both active lesions and areas of dermatitis were present. The treatment with benzyl benzoate cleared up the active lesions and did not aggravate the dermatitis. The formula which is and has been used for some time at the Finsen Institute in Copenhagen, Denmark, is as follows:

Benzyl benzoate	50 Gm.
Liniment of soft soap	65 Gm.
Alcohol (90 per cent)	30 Gm.
Distilled water	5 Gm.

The quantity prescribed here is sufficient for the treatment of one adult patient. A hot soap bath is taken just before the benzyl benzoate mixture is used. The solution is shaken well, and approximately 75 Gm. is applied with a small brush over the body. The material is allowed to dry, and then another layer is applied in a similar fashion. After the skin is dry, the patient puts on his clothes. The next day he takes a hot bath with soap and then changes to fresh clothes. The pruritis is markedly diminished. The old lesions heal spontaneously and no fresh lesions appear. Usually this is all the treatment that is necessary. As in other forms of treatment of scabies, the night clothes and bed clothes are boiled. A brief experience with this form of treatment has shown excellent results. Physicians in Copenhagen, who have used it for some time, claim that cutaneous irritations result only occasionally and that no evidence of systemic poisoning has been observed. I have observed one case of mild dermatitis in a blonde patient.

Doctors Building.

CONTACT DERMATITIS FROM RUBBER TIPS OF STETHOSCOPE

CHRIS R. HALLORAN, M.D., LOS ANGELES

In a review of the literature I have been unable to find a report of a case like one encountered recently, and therefore I believe the one I observed worthy of a report:

Dr. H. W. was seen on December 23 because of a dermatitis of both ears and the posterolateral surfaces of the neck. There was a moderate amount of erythema and scaling of the external auditory meatus, which faded out peripherally.

There was also a dime-sized patch of similar erythema and scaling on the posterolateral aspects of the neck, about 1 cm. above the edge of the collar. The lesions were of several months' duration, and there were some itching and discomfort. The patient stated that he used a rubber-tipped stethoscope and that it was his custom while examining patients to let the stethoscope hang about his neck. The dime-sized patches of dermatitis on the neck coincided with the area of contact with the rubber tips of the stethoscope when it was suspended in this manner.

Metal tips were substituted for those of rubber, and after a few weekly treatments with fractional doses of unfiltered roentgen rays and the use of a soothing ointment the eruption of the ears and neck subsided.

The rubber tips were made of pliable black rubber. A contact test was made from a slice of the rubber of one of the tips, on the medial side of the upper part of the left arm. After twenty-four hours there was erythema and itching, which progressed to scaling and persisted for three or four days. As a control, the same piece of rubber was used in making a contact test on the flexural surface of my own arm. After forty-eight hours there was no evidence of irritation.

Rubber has for a long time been recognized as a source of dermatitis, both to persons wearing it and to those employed in the various rubber industries. Certain of the vulcanizing agents and "accelerators" used in manufacturing processes are responsible for dermatoses among workers in the rubber industries. However, Downing [1] quoted from a letter of a chief chemist of one of the rubber companies, in which it was stated that some persons get marked reactions from the protein materials in the rubber as it comes direct from the tree.

Rubber is so commonly used for the aural tips of stethoscopes that it is surprising that similar cases have not been reported.

It may be well to keep this possible source in mind when one is confronted by a dermatitis of the external auditory meatus in a physician.

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1. Downing, John G.: Dermatitis from Rubber Gloves, New England J. Med. **208**:196-198 (Jan. 26) 1933.

Clinical Notes

AN INTERESTING CASE OF INFECTION WITH TRICHOMONAS VAGINALIS

LESTER HOLLANDER, M.D., PITTSBURGH

An interesting case came under my observation, which I believe has sufficient value to be made the subject of a short report.

REPORT OF CASE

Mrs. A. R., an American housewife aged 46, presented herself for examination and treatment on Oct. 26, 1936, on account of a disturbing itching and eruption of the external genitalia. This condition was of five months' duration, and although its intensity varied, there had been no total freedom from symptoms during this entire period.

The onset had been sudden. While working in her garden the patient was seized with intense itching of the external genitalia, which persisted and became so annoying that she consulted her family physician the next day. Local applications were prescribed, but the itching and discomfort became worse, and the vulva became increasingly inflamed. The inflammation extended into the inner surface of the thighs and was characterized by a sharply demarcated border.

Three weeks after the date of onset she was referred to a dermatologist, who treated her with roentgen irradiation and topical application of a calamine lotion. The inflammatory process spread, and the patient was ordered to remain in bed and keep at rest for about fourteen days. The condition of her skin improved, but the vaginal pruritus continued.

She was then sent to the mountains for her summer holidays, and during the ensuing four weeks she spent most of her time in absolute quiet, exposing herself to warm air and keeping the labia of the vulva well separated.

As a result of this treatment the condition improved, but the vaginal discomfort would recur on the slightest provocation. Early in September the patient returned home, and in a short time the itching became intense again.

At this time a gynecologist found nothing of any moment contributing to the patient's condition. As the labia minora pudendi became excoriated, it was thought advisable to apply radium. This was done.

The discomfort continued, however, and four weeks after the radium had been applied the patient consulted me.

General examination revealed little; the patient was a fairly well nourished woman with a somewhat anemic appearance. Her skin and mucous membranes appeared pale.

The external genitalia were reddened and severely scratched. The labia majora were edematous; the labia minora were small and somewhat atrophic and appeared inelastic. At the upper pole of the vulva, between the large and

From the Pittsburgh Skin and Cancer Foundation.

the small labia, the mucous membrane was slightly reddened and presented an eruption of vesicles the size of a pinpoint. This eruption caused a burning sensation.

On the mucous membrane of the introitus, immediately beneath the urethral opening, there were six small strawberry-red granular papules, varying in size from that of a pinpoint to that of a split pea. The larger ones had an uneven, segmented appearance of the quality of the outer segment of a strawberry.

The patient was emphatic in the statement that it was this reddened granular eruption which caused the intense itching and that this type of lesion had been present since the condition began. These segmented lesions were not unlike the lesions seen on the tongue of patients suffering from scarlet fever.

Thus, the eruption consisted of two definite lesions: (1) a fine vesicular confluent reddish erythematous eruption and (2) the strawberry-like segmented discrete lesions. In addition there was the atrophic condition of the labia minora.

Trichomonas vaginalis was observed on examination, and treatment directed to it gave the patient immediate relief. The somewhat atrophic condition of the labia minora was interpreted as a beginning kraurosis, and the patient was given 2 cc. injections of the gonadotropic substance from the urine of pregnant women twice a week for a period of three weeks; since then one injection of the same amount has been given weekly.

The lesion, the pinpoint-sized vesicles and the little strawberry-like papules disappeared, and the patient has suffered no more discomfort.

SUMMARY

A description of vaginal and vulvar lesions caused by Trichomonas vaginalis is given. As this infection is common, it seems advisable that dermatologists should include in their preliminary examination of pruritus vulvae an investigation for the presence of T. vaginalis.

631 Jenkins Building.

Abstracts from Current Literature

EDITED BY DR. HERBERT RATTNER

CALCINOSIS UNIVERSALIS AND CALCINOSIS CIRCUMSCRIPTA IN INFANCY AND IN CHILDHOOD. JACOB L. ROTHSTEIN and SARA WELT, Am. J. Dis. Child. **52**:368 (Aug.) 1936.

The authors report three cases of universal calcinosis and review the literature on the subject. The article is about forty pages long and deals with the subject rather exhaustively. Any one interested should read the original article in toto. A lengthy bibliography is appended. NELSON PAUL ANDERSON, Los Angeles.

HIRSUTISM, HYPERTENSION AND OBESITY ASSOCIATED WITH CARCINOMA OF THE ADRENAL CORTEX: INDETERMINATE PITUITARY ADENOMA AND SELECTIVE CHANGES IN THE BETA CELLS (BASOPHILS) OF THE HYPOPHYSIS. I. GRAEF, J. J. BUNIM and A. ROTTINO, Arch. Int. Med. **57**:1085 (June) 1936.

In the case reported, that of a 19 year old girl, there were observed on autopsy a metastasizing carcinoma of the adrenal cortex and an adenoma of the anterior lobe of the pituitary gland.

There were: hypertrichosis of the face, including the chin and upper lip, and of the extensor surfaces of the legs and forearms; fine dry brownish papules on the dorsa of the fingers and flexor surfaces of both wrists, and a greasy appearance of the skin of the face, which contained many comedones.

A complete pathologic report is given, as well as a discussion of the effect of adrenal disturbances on the pituitary gland.

During life a marked overexcretion of estrogenic substance in the urine was noted. Autopsy revealed atresia and atrophy of the ovaries and endometrium.

JAMIESON, Detroit.

THE TREATMENT OF EARLY SYPHILIS WITH ELECTROPYREXIA. C. A. NEYMANN, T. K. LAWLESS and S. L. OSBORNE, J. A. M. A. **107**:194 (July 18) 1936.

Seven patients with early syphilis were treated with hyperpyrexia alone. Even when apparently adequate doses were given, cutaneous or serologic relapses occurred after the treatment was discontinued. When hyperpyrexia was combined with administration of neoarsphenamine and bismuth subsalicylate in treatment of seven other patients with early syphilis, Neymann, Lawless and Osborne obtained negative serologic reactions and clinical cures in an average period of treatment of forty-two days. There has been no evidence of relapse in the latter group in periods of observation ranging from five to eighteen months. It was noted that Spirochaeta pallida observed in cutaneous lesions of syphilis in man is destroyed by temperatures of 41 C. (105.8 F.) maintained for two hours. The same organism observed in human glands is not destroyed by longer exposure to temperatures above 41 C. (105.8 F.) maintained for five or more hours when the temperature is raised to 42 C. (107.6 F.) for one of these hours.

GLOMUS TUMOR: REPORT OF A CASE. F. J. JIRKA and C. S. SCUDERI, J. A. M. A. **107**:201 (July 18) 1936.

The case reported by Jirka and Scuderi is that of a man aged 70 on whose forearm a painful nodule had developed ten years before, following an injury at the site. It was about the size of a split pea and was extremely sensitive to even the slightest pressure. When it was excised it was found to be adherent to the skin and well encapsulated. Histologic examination revealed that the nodule was composed of smaller and larger vascular spaces filled with red

blood cells and lined by endothelial cells. Between these vascular spaces there were cords and trabeculae composed of round to oval cells with a pale-staining cytoplasm which had an affinity for the eosin stain. The nuclei were round and pale staining and showed a fine chromic network. The cells were slightly elongated in the form of epithelial cells. Thick-walled arteries and arterioles were prominent.

OBSERVATIONS ON INDUSTRIAL DERMATOLOGY. H. R. FOERSTER, J. A. M. A. **107**: 247 (July 25) 1936.

Foerster reviews the laws of the different states governing compensation claims in industry and points out the wide variations in the provisions of these laws and the existing opportunity for injustice to both employer and employee. He was impressed with the almost complete absence of provision for participation by the medical profession in the designing and enactment of the various laws and provisions for their application and interpretation. Early expert examination and treatment by a dermatologist is essential in all cases of suspected industrial dermatoses. The differential diagnosis of allergic occupational dermatitis is not always easy. The chief diseases causing confusion are the dermatomycoses, infectious eczematoid dermatitis, irritation of the skin due to chemicals and atopic dermatitis. Patch tests if correctly made and intelligently interpreted may be useful; these tests, however, are not "a short-cut to dermatologic knowledge."

CONTACT DERMATITIS FROM MENSTRUAL PAD. F. E. CORMIA, J. A. M. A. **107**: 429 (Aug. 8) 1936.

Cormia attempts to correlate an acute circumoral neurodermatitis, a contact dermatitis from a menstrual pad (proved by patch tests), an eruption resembling erythema nodosum and erysipelatous lesions on the legs which occurred in a woman aged 35. The only common factor elicited that was present in the successive development of these eruptions was nervous "tension" and nervous "shock." The menstrual pad causing the dermatitis was made from pure cellulose and did not contain any chemicals or foreign material. No other record of a similar sensitivity was discovered in the literature.

INFANTILE ECZEMA FROM COD LIVER OIL: REPORT OF TWO CASES. S. J. HOFFMAN and H. RATTNER, J. A. M. A. **107**:494 (Aug. 15) 1936.

In two cases of infantile eczema in which there was a family history of allergy the infant was found to be sensitive to fish oils. The eczema was cured when the ingestion of cod liver oil was discontinued. Recurrences were traced to the inhalation of odors produced by the cooking of fish. In one child the eating of fish produced severe urticaria and vomiting.

THE ADMINISTRATION OF THE SYPHILIS CONTROL PROGRAM. R. A. VONDERLEHR, J. A. M. A. **107**:782 (Sept. 5) 1936.

Vonderlehr points out that syphilis is at present one of the most prevalent diseases. Its cause and the means of preventing it are well known. Since the disease is insidious, a long term project must be undertaken when a program to control syphilis is promulgated. The public must be taught that syphilis is a disease and not a form of moral delinquency. The officer in charge of a section of venereal disease control in the health department should have special qualifications. His duties are administrative and also advisory and cooperative, the last-named phases referring to his relationship with local health officers and with physicians in private practice. The syphilis control unit should integrate and coordinate its activities with other sections of the health department, and unification of programs with similar units in adjoining cities and counties should be undertaken. The importance of the problem of the control of syphilis makes the adequate allocation of funds desirable in order that a program may be pursued successfully.

PRACTICAL EPIDEMIOLOGY OF SYPHILIS. D. C. SMITH, J. A. M. A. **107**:784 (Sept. 5) 1936.

Smith states that the incidence of syphilis may be reduced and the disease finally eradicated if prevention is approached objectively, positively and unrelentingly. The survey of groups of the population by means of serologic tests is a practical method for the determination of the incidence of syphilis. Concomitant provision for adequate treatment in cases so discovered is requisite. Another effective method in attacking the problem of the control of syphilis is to trace sources and to follow up contacts of syphilitic patients. Smith has successfully pursued this policy at the University of Virginia Hospital for several years. He finds that almost all patients, when approached with tact and patience, cooperate and assist in bringing about the examination of contacts suspected of having syphilis. The patient also learns to appreciate the need for adequate treatment and is more likely to take treatment regularly and for the requisite length of time.

DEVELOPMENT OF ADEQUATE TREATMENT FACILITIES FOR CONTROL OF SYPHILIS. J. E. MOORE, J. A. M. A. **107**:787 (Sept. 5) 1936.

Moore estimates that less than half of the persons freshly infected with syphilis seek competent medical attention during the early and infectious stages of their illness. Two important reasons for this state of affairs are (1) that early syphilis may be symptomless (one man in every five and one woman in every three with syphilis have acquired the disease without knowing it) and (2) that there is a tendency for a considerable proportion of patients to consult an irregular practitioner, quack or druggist. Moore states that there is a need for adequate facilities to treat a million new patients with syphilis each year in the United States, and that the total number of patients with syphilis is about 12,000,000. An invaluable method of detection would be to make routine serologic tests in all the services of all hospitals. Had this been carried out in all the hospitals in the United States, in about 770,000 patients with syphilis the disease would have been recognized and brought under care during the past year. By means of the epidemiological investigation of contacts of infected patients, additional patients may be detected. Education of the public in regard to the nature of syphilis and the importance of early and thorough treatment has been neglected in the past. An aroused public will aid in the elimination of the irregular practitioner. Free diagnostic laboratory service is available in most states. There is need, however, for more consultation centers so that diagnostic and therapeutic advice may be provided on request. More state-controlled clinics for the treatment of syphilis are urgently needed, and Moore is confident that private practice will lose nothing, but syphilis control will gain much, if the policy of free treatment is generally adopted.

FEVER THERAPY IN TABES DORSALIS. A. E. BENNETT, J. A. M. A. **107**:845 (Sept. 12) 1936.

From a review of the literature Bennett concludes that about 50 per cent of patients with all types of tabetic conditions are benefited by malarial therapy. The use of malaria, however, is contraindicated in cases of advanced ataxia states, and in those in which associated infectious processes are present. The mortality from malarial complications in the treatment of tabes dorsalis is high. For this reason some less dangerous method of inducing hyperpyrexia was considered advisable. Although the number of reports on the use of diathermy in tabes dorsalis is small, the reports are all favorable. Bennett completed treatment in a series of fourteen patients with artificial fever therapy, using the Kettering hypertherm and chemotherapy. In eleven patients, intractable lightning pains and gastric crises were relieved. Other symptoms were also improved. Chemotherapy used alone had previously failed to effect any improvement.

UNTREATED SYPHILIS IN THE MALE NEGRO. R. A. VONDERLEHR, T. CLARK, O. C. WENGER and J. R. HELLER JR., J. A. M. A. **107**:856 (Sept. 12) 1936.

Vonderlehr, Clark, Wenger and Heller made a study of 399 syphilitic male Negroes who had never received antisyphilitic treatment, 201 presumably nonsyphilitic male Negroes and approximately 275 male Negroes with syphilis who had been treated during the first two years of their infection. Sixteen per cent of the untreated patients showed no evidence of morbidity, while 61 per cent of the presumably nonsyphilitic patients were in sound physical health. An analysis of abnormalities found on physical examinations of the 399 syphilitic male Negroes showed that cardiovascular disease was present in 46.6 per cent, uncomplicated aortitis in 23.6 per cent, diseases of the nervous system in 26.1 per cent, diseases of the skin or adnexa in 18.3 per cent and involvement of the bones, joints or bursae in 12.5 per cent. In the nonsyphilitic group, cardiovascular disease was noted in 23.9 per cent, uncomplicated aortitis in 5 per cent, involvement of the central nervous system in 2.5 per cent, diseases of the skin or adnexa in 5.5 per cent and diseases of the bones, joints or bursae in 4.5 per cent. Of the patients with syphilis who were treated during the first two years of their infection, 68 were considered to have received adequate therapy. No manifestations of late syphilis were found in any of these patients. Even in patients who were inadequately treated, the incidence of cardiovascular disease and of involvement of the central nervous system was from two to three times less than in the group of untreated syphilitic patients.

THE CHOICE OF OINTMENT VEHICLES IN DERMATOLOGY. B. FANTUS, J. A. M. A. **107**:861 (Sept. 12) 1936.

Ointment vehicles may be separated into lipotropic applications, which include ointments and cerates and cling to the fatty surface of the skin, and hydrotropic applications or pastes, which have an affinity for water. Another basis for division of ointment vehicles is the differences in melting points. When the melting point of a fatty application is higher than the temperature of the surface of the skin, the substance is designated as a cerate; if the melting point is lower than the temperature of the skin, the product is known as an ointment. Cerates are useful when a medicament is needed which will not liquefy and run through a dressing. Ointments are considered by Fantus to be the most important vehicles for carrying medication to the skin. The so-called simple ointment is petrolatum with 5 per cent wool fat and 5 per cent white wax; it is useful as a base for the required medicament. In the presence of acute inflammatory conditions ointments in which water is incorporated by means of emulsification are indicated. Such preparations are known as cold creams. Cold creams are useful as vehicles for antipruritic ointments as well as cosmetics. Ointment of zinc oxide may be more soothing than simple ointment through a combination of the zinc with irritating acids produced at the seat of the disease. A dense application is frequently desirable. The paste of zinc oxide, containing 25 per cent zinc oxide and 25 per cent starch in white petrolatum may be used later. Recent studies indicate that the vehicle has little, if any, influence on absorption through the skin except a retarding action. Pastes made with tragacanth are often indicated in treatment of moist raw surfaces.

LEWIS, New York.

HYPERSENSITIVENESS TO ARSENIC: DERMATITIS FROM LIQUID ARVON. H. H. GELFAND, J. Allergy **7**:254 (March) 1936.

In a man aged 31 generalized dermatitis resulted from the application of the hair tonic liquid arvon to the scalp. The offending ingredient was arsenic, the amount of which is present in amount equivalent to approximately 17 cc. of solution of potassium arsenite per hundred cubic centimeters of the tonic. Positive reactions were obtained to patch tests with liquid arvon and a 17 per cent mixture of solution of potassium arsenite. Attempts at passive transfer gave negative results.

CARO, Chicago

ULCERS OF THE LEGS: DIAGNOSIS AND TREATMENT. LOUIS A. BRUNSTING, Journal-Lancet **56**:468 (Sept.) 1936.

Brunsting gives the clinical differential diagnostic features of all the usual types of ulcers of the leg. After ruling out trauma, infection and circulatory disturbance Brunsting uses measures to eliminate edema by injections into veins, application of moist compresses and support by elastic bandages or a cast consisting of gelatin, glycerin, zinc oxide and water. The treatment of secondary infection and the direct stimulation of healing are also discussed.

CANCER OF THE FACE. CARL W. LAYMON, Journal-Lancet **56**:472 (Sept.) 1936.

Laymon reviews the results obtained in sixty-three cases of cancer of the face in which treatment consisted of roentgen irradiation. The technic of the therapy is described. As satisfactory results were obtained in 92 per cent of the cases, he regards this treatment as effective in cases of uncomplicated malignant cutaneous disease of the face.

PIGMENTATION OF THE SKIN: ITS VALUE ESPECIALLY IN THE DIAGNOSIS OF SYSTEMIC DISEASE. HAMILTON MONTGOMERY, Journal-Lancet **56**:473 (Sept.) 1936.

The clinical and histologic cutaneous features of Addison's disease, acanthosis nigricans, hemochromatosis, arsenical pigmentation and argyria are described, and these conditions are differentiated from other forms of generalized and localized pigmentation. Montgomery emphasizes the importance of careful study of pigmented skin as giving valuable diagnostic clues to many systemic diseases.

LYNCH, St. Paul.

OBSERVATIONS ON THE TERMINATIONS OF CUTANEOUS NERVES. H. H. WOOLLARD, Brain **58**:352, 1935.

In this investigation additional evidence is presented for the punctate theory of sensation. Pain, touch and cold spots were carefully located by frequent retesting, the skin of the outer side of the thigh being chosen for study. The skin involving these carefully recorded areas was then excised in thin slices of about 0.1 mm. in thickness and studied histologically. The immediate effect of the cutting caused confusion of the various sensations. The perception of cold was immediately lost, but after a period, not exactly determined, the ability to appreciate the various sensations returned.

From the order of disappearance of the different sensations in the course of these experiments it is to be inferred that pain is at once the most superficial and the most extended through the various cutaneous strata. Superficial touch persists after removal of the most superficial part of the epidermis but disappears as the cut goes deeper. The sensory endings for cold lie at about the same level. Touch is carried deeper into the tissues by means of the hair follicles. No observations were made on heat spots.

The presentation of a punctate distribution throughout the experiment, the subsequent return to the original position and the possibility of abolishing one point in a series of similar sensory points add weight to the theory of the punctate distribution of sensation and to the notion that each form of sensation has its own anatomic form. SALL, Philadelphia. [ARCH. NEUROL. & PSYCHIAT.]

ERYTHROCYANOSIS. E. D. TELFORD and H. T. SIMMONS, Brit. M. J. **1**:629 (March 28) 1936.

The authors discuss ten cases of this condition, in which the pain, disability and total incapacity for work justified operative treatment. Ganglionectomy in the lumbar portion of the cord was performed on both sides and the results were most satisfactory. In all the patients normal activity was fully restored, and

a gradual disappearance of the discoloration and thickening of the tissue about the ankle occurred. The authors suggest that endocrine dysfunction is a cause of erythrocyanosis in some cases. However, because of the similarity of the lesions to those seen in severe anterior poliomyelitis, the authors believe that the mechanism in the two conditions is similar and consists of defective venous return, the presence of excessive fat and the action of cold. This probably explains the greater incidence of the condition in women and the relation to cold weather, especially in view of the feminine fashion of wearing scanty clothing on the lower extremities. They suggest that a similar explanation may apply to erythema induratum. Their treatment is not recommended in cases in which the manifestations are mild; these have been discussed under the title erythrocyanosis crurum puellarum. In the cases described the patients' ages ranged from 16 to 33 years, and the duration of the disease, from three to twenty years.

RENDU-OSLER-WEBER'S DISEASE. HYMAN I. GOLDSTEIN, Brit. M. J. **1**:721 (April 4) 1936.

In a brief letter Goldstein calls attention to heredofamilial angiomatosis with recurring hemorrhages, i. e., a hereditary hemorrhagic dysplasia, not sex-linked, producing no changes in the blood other than secondary anemia. A family tree is charted; it shows that eighteen cases occurred in five generations. The persons affected were ten men and eight women, the first being a mother, two of whose four children, a daughter and a son, had the disease. A bibliography is given.

ERYTHROCYANOSIS. FREDRICK SUTTON, Brit. M. J. **1**:772 (April 11) 1936.

Two cases of this condition are reported briefly. In both marked improvement resulted from subcutaneous injections of acetylcholine bromide in doses of from 0.25 to 1 cc. The patients were women aged respectively 27 and 47. The younger one had typical erythrocyanosis crurum puellarum; the older had cold, clammy, reddish blue hands and forearms which showed nodules and scars. The right leg and foot were edematous, blue and cold; the big toe was anesthetic, blue, cold and necrotic. The entire condition became practically normal at the end of six weeks.

APPEL, Boston.

TWO CASES OF LEPROTIC ABSCESS. GANAPATI PANJA, Calcutta M. J. **30**:605 (April) 1936.

This rare complication of leprosy is reported to have occurred in two instances.

In both cases the pus was carefully removed from the abcesses to avoid contamination by skin cocci. Many lepra bacilli were observed in the pus.

AN UNPROVEN CASE OF PINTA ORIGINATING IN CEYLON. HOWARD FOX, J. Trop. Med. **39**:125 (June 1) 1936.

Fox takes exception to the diagnosis of pinta in a case reported by Fernando in the Dec. 1, 1934, issue of the *Journal of Tropical Medicine and Hygiene,* on the ground that fungi can be cultivated from the skins of patients with pinta and can also be observed microscopically but that these fungi bear no relationship to the disease.

Other points to which Fox objects are the lack of reference to the Wassermann test and the presence of itching in the case reported by Fernando.

JAMIESON, Detroit.

CUTANEOUS ERUPTION DUE TO ACETARSONE. J. NICOLAS and J. ROUSSET, Bull. Soc. franç. de dermat. et syph. **43**:3, 1936.

Acetarsone has been regarded as an uncommon factor in the production of eruptions due to arsenic. The authors, however, report an eruption which followed

injections of acetarsone. Intradermal tests with the drug gave negative results. The authors stress the fact that at its onset the eruption closely resembled pityriasis rosea. In the discussion Gaté states that in 1923 he observed three cases of eruptions due to acetarsone. The drug had been given by mouth. These eruptions were of the rubeoliform or scarlatiniform erythema type.

CONGENITAL ABSENCE OF A PART OF THE OCCIPUT DUE TO CONGENITAL SYPHILIS. J. NICOLAS and J. ROUSSET, Bull. Soc. franç. de dermat. et syph. **43**:5, 1936.

The authors report the case of an 18 year old girl who entered the hospital for treatment of urethritis. On examination it was discovered that a part of the osseous portion of the occiput was missing. Palpation revealed a depression which corresponded to a point which in roentgenograms of the skull showed complete absence of bone. The deformity measured 7 by 5 cm. and was covered by apparently normal scalp. Schüller-Christian's disease was ruled out, and although the Wassermann and Kahn tests were negative the authors felt that the process was most probably of syphilitic origin, especially as a diagnosis of syphilis had been made on the patient's mother several years previously.

PEMPHIGUS IN ASSOCIATION WITH ECZEMA LOCALIZED TO ECZEMATOUS PARTS; EXTRAORDINARY BENIGN CHARACTER. H. GOUGEROT and P. FRUMUSAN, Bull. Soc. franç. de dermat. et syph. **43**:74, 1936.

The authors report a case of true pemphigus associated with eczema in which the bullae appeared only on the eczematous plaques. The involution of the lesions was rapid, complete healing taking place in two days. There was eosinophilia in the fluid from the blisters, the percentage of eosinophils being 80. In the blood the percentage of eosinophils was only 6. There was neither itching nor pain. The authors were unable to explain the association of pemphigus and eczema and stressed the benign course in this case, in contrast to the usual grave character of the bullous dermatoses.

In discussing the case Tzanck stated that he believed the condition to be most likely dermatitis herpetiformis.

URTICARIA PIGMENTOSA WITHOUT PIGMENTATION. A. SÉZARY and A. HOROWITZ, Bull. Soc. franç. de dermat. et syph. **43**:78, 1936.

The authors report a case of urticaria characterized by an infiltration of mast cells in the cutis but lacking the ordinary pigmentation which accompanies this dermatosis. The eruption was of nine months' duration and was characterized by red papules which urticated on friction and by dermographism in apparently normal skin. The authors hesitated to make a clinical diagnosis of urticaria pigmentosa without pigmentation and made the decision only after a biopsy had been made. In discussing the case Simon stated that in his opinion too much attention was being attached to the histologic structure of dermatologic lesions, this leading to diagnoses which were an insult to grammarians and scientific men, such as urticaria pigmentosa without pigmentation and aleukemic leukemia. Thiebault agreed with his view.

LUPUS MILIARIS DISSEMINATUS OF THE LYMPHODERMIC TYPE INVOLVING THE FACE. J. GATÉ, P. J. MICHEL, H. BOUQUIN and G. CHANIAL, Bull. Soc. franç. de dermat. et syph. **43**:163, 1936.

A 40 year old woman presented plaques on the face and neck of several years' duration. Although there was a family history of tuberculosis, the patient had never had the disease as fas as was known. The lesions began as slightly raised violaceous plaques on the neck and persisted for a year without noticeable change. New lesions, accompanied by itching, then appeared. On palpation there was a definite infiltration. Among the diagnoses considered were lymphoblastoma, lupus vulgaris and lupus miliaris disseminatus. The Wassermann reaction was negative.

Examination of the blood and histologic examination showed no evidences of leukemia. Histologic examination showed a homogeneous infiltrate made up of round cells and epithelioid cells. There were no giant cells or necrosis.

Gaté expresses the opinion that the first clinical impression was leukemia, which, however, was ruled out by the results of studies of the blood and histologic examination. In view of the latter a diagnosis of tuberculid seemed most likely, although a diagnosis of syphilis was defendable on account of the abundance of plasma cells. The impression was gained, however, that sarcoid did not enter into the diagnosis on account of the polymorphous infiltration. Treatment with bismuth was instituted, and the authors state that the response to this therapy would aid in making a final decision.

LICHEN SIMPLEX CHRONICUS OF VIDAL. J. WATRIN and R. WEILLE, Bull. Soc. franç. de dermat. et syph. **43**:213, 1936.

A man aged 45 years had a lichenified plaque of sixteen years' duration near the left knee. The interesting features were histologic rather than clinical: there was considerable sclerosis in the cutis, and a great lack of cellular infiltration was noted. In the muscular layer of the vessels there was noticeable hypertrophy but no lymphatic infiltration was observed about them. Radiotherapy sufficed to relieve the itching, but a hyperchromic plaque remained.

PREPUTIAL CALCULI RESEMBLING CHANCRES. J. L. CREHANGER, R. WEILLE and A. SPILLMANN, Bull. Soc. franç de dermat. et syph. **43**:226, 1936.

A man aged 29 was seen because of phimosis. On palpation four hard regular sharply limited nodules were felt, which, according to the authors, suggested syphilitic chancres. However, there was no adenopathy and the Wassermann reaction was negative. After dilation of the preputial ring four calcareous concretions were found. The phimosis, of course, made it impossible to determine exactly what was lying beneath the prepuce.

LAYMON, Minneapolis.

MODIFICATIONS OBSERVED IN THE SPINAL FLUID OF PATIENTS WITH DEMENTIA PARALYTICA TREATED WITH MALARIA. CARLO MILANI, Arch. ital. di dermat., sif. **12**:413 (July) 1936.

As a result of numerous examinations of the spinal fluid of patients with dementia paralytica receiving malarial treatment, Milani draws the following conclusions: During the malarial attacks there is an increase in the albumin content and in the number of cells of the spinal fluid, which shows that malaria produces an aggravation of the meningeal inflammation. Immediately after the cessation of the attacks and after a course of injections of arsphenamine, the albumin content and the number of cells decrease, although there is no direct relationship between this serologic improvement and the clinical response. The use of arsenicals immediately after malarial therapy seems to accelerate the humoral improvement, especially in regard to the Wassermann reactions of the blood and spinal fluid and to the pleocytosis. Later the inflammatory reaction seems to recede gradually and slowly. The Wassermann reactions become negative, the reversal occurring first in the blood and later in the spinal fluid. In cases in which the response is favorable the spinal fluid becomes practically normal in from two to eight years, except for the fact that a slightly positive Pandy reaction and slight precipitation in the third tube of the colloidal benzoin test are observed. In cases in which the condition is stationary or in which relapse occurs, the reaction of the spinal fluid remains positive, but there is no parallelism between the clinical and the serologic status. In some cases in which remarkable clinical improvement takes place the serologic reaction remains unchanged, and in some in which clinical improvement does not occur the serologic reaction may be reversed. In general, the favorable modification of the cytologic formula and of the colloidal benzoin reaction points toward a change from typical dementia paralytica to simple neurosyphilis. The

early diminution of the albumin and globulin contents, the subsiding of the pleocytosis and the change of the colloidal benzoin reaction constitute a favorable index of prognosis but have no absolute value.

PARDO-CASTELLO, Havana, Cuba.

THE ETIOLOGY OF ERYTHEMA CHRONICUM MIGRANS. H. ASKANI, Dermat. Wchnschr. **102**:125 (Feb. 1) 1936.

Askani reviews the literature in regard to erythema chronicum migrans (Lipschütz) and describes two cases. He concludes that the etiologic factor is in the secretion from the salivary glands of the tick. The toxin is thermolabile and produces the ringed lesion only in certain predisposed persons.

LEUKOPATHIA RETICULARIS WITH ATYPICAL ANGIOMATOSIS, LIVEDO RETICULARIS AND BRONZE DIABETES. WILHELM MILBRADT, Dermat. Wchnschr. **102**:131 (Feb. 1) 1936.

A 37 year old man whose family history was essentially irrelevant had a mass of red macules ten years before he was observed. These were located principally on the inner surfaces of the hands and were arranged in a network. This condition increased slowly. Two years before he was seen cramplike pains developed in the right upper portion of the abdomen and numerous small red spots appeared on the face and trunk. One and a half years later the patient became ill and a bronze discoloration of the skin developed. There were areas of depigmentation on the forearms. Milbradt concludes that the syndrome was probably due to an inherited deficiency of the blood vessels.

THE TREATMENT OF ACNE VULGARIS BY SUCTION. ARPÁD SKUTTA, Dermat. Wchnschr. **102**:137 (Feb. 1) 1936.

The author has devised a series of applicators, the use of which is to produce a vacuum and thus empty the various lesions of acne. These are described, and their use is explained.

ALOPECIA AREATA RECIDIVANS. A. J. KARTAMISCHEW, Dermat. Wchnschr. **102**:166 (Feb. 8) 1936.

Kartamischew reports the case of a 12 year old girl who had a patch of alopecia areata the size of a hen's egg which recurred each summer for four successive years. In each instance the lesion cleared in one or two months. There were no other dystrophic lesions, nor were there any symptoms of nervousness.

ECZEMA SERPIGINOSUM EPIDERMOPHYTICUM (EPIDERMOPHYTON RUBRUM CASTELLANI-BANG). JOHANN OBRTEL, Dermat. Wchnschr. **102**:168 (Feb. 8) 1936.

Among 400 cases of cutaneous fungous diseases, in 7 the condition was found to be due to Epidermophyton rubrum Castellani-Bang. The clinical appearance and course were typical. The regions most frequently involved were the groins, the thighs, the back and the navel. Usually the involved areas were palm-sized or larger, and the central portions were scaly or lichenified. The borders were rarely continuous but consisted of follicular papules which were crusted and spread peripherally. The lesions were extremely pruritic and unusually resistant to therapy.

INDUSTRIAL INJURY OF THE NAILS OF WORKERS IN A SILK WINDING FACTORY. A. J. KARTAMISCHEW, Dermat. Wchnschr. **102**:175 (Feb. 8) 1936.

In examining the workers in a silk-winding factory the author found that a large percentage of the silk cookers and winders were afflicted with thinning and inflammation of the nails of the hands and partial onycholysis.

AN UNUSUAL CASE OF LUPUS ERYTHEMATOSUS GENERALISATUS: OBSERVATIONS ON THE TREATMENT OF LUPUS ERYTHEMATOSUS AND OTHER DERMATOSES WITH A GOLD COMPOUND. A. PILLOKAT, Dermat. Wchnschr. **102**:193 (Feb. 15) 1936.

Pillokat reports the case of a 12 year old boy who had had lupus erythematosus for three years. The eruption started after the patient took a sun bath; it involved the face, the scalp, the hands and the upper portion of the chest and back; a few lesions were present on the arms and forearms. On the back the eruption was ringed and consisted of confluent lesions presenting a geographic appearance. There was no evidence of tuberculosis and no febrile reaction. There were moderate generalized lymphadenopathy and moderate secondary anemia. No definite focus of infection was discovered. Oral administration of bismuth produced no improvement. A preparation containing 12.5 per cent of gold was given, and rapid improvement followed. The preparation which was used is a derivative of a sulfur protein obtained from the keratin of skin and supporting tissue. It is said to be less toxic than other gold compounds. The author cites a number of other cases of erythematous lupus in which response to this compound was rapid. One patient with rectal stricture due to lymphogranuloma venereum improved as a result of treatment with the same product.

MECHANICAL TREATMENT OF INTERTRIGINOUS ECZEMA AND ANAL FISSURES. F. HAMMER, Dermat. Wchnschr. **102**:221 (Feb. 22) 1936.

Hammer describes a harness-like bandage by which he keeps the folds apart particularly in cases of intertrigo of the inguinal regions. In the treatment of anal fissures he makes use of an anal pessary consisting of a short piece of rubber with a small glass ball in each end. This tends to relieve the muscular spasm.

A CONTRIBUTION TO THE DYNAMICS OF THE SYPHILITIC INFECTION IN THE HUMAN BODY. HERBERT WOSYKA, Dermat. Wchnschr. **102**:202 (Feb. 15) 1936.

A patient with syphilitic meningo-encephalitis exhibited a recurrent papular eruption of secondary syphilis after malaria therapy. The history is given in detail and the mechanism of the phenomenon is discussed.

TAUSSIG, San Francisco.

THE ANTIGEN CONTENT OF THE SERUM OF PATIENTS WITH LYMPHOGRANULOMA VENEREUM. M. HOMBRIA, Dermat. Wchnschr. **102**:222 (Feb. 22) 1936.

Hombria prepared 0.5 per cent phenolized serum from the serum of five patients with lymphogranuloma venereum in early stages (from two to three weeks' duration). In each of eleven cases of lymphogranuloma venereum intradermal tests were made with (1) the phenolized serum alone, (2) serum plus Frei antigen of known potency, (3) Frei antigen alone and (4) phenolized saline solution. In all the cases the Frei test was positive. In two instances the serum alone produced a slight reaction. The mixture of serum and Frei antigen did not produce a noticeable increase in the strength of the reaction. According to the author these results are at variance with those reported by Reiss.

DO LOCALIZED LESIONS OF THE SKIN RESULT FROM LEAD OR ITS COMPOUNDS? W. ENGELHARDT and W. MEERKAMP, Dermat. Wchnschr. **102**:254 (Feb. 29) 1936.

The authors made many patch tests in an attempt to demonstrate a cutaneous sensitivity to lead compounds. They conclude that it is doubtful if such sensitivity ever occurs.

TAUSSIG, San Francisco.

ACHORION GYPSEUM. Y. TAKAHASHI and T. MORIKAWA, Jap. J. Dermat. & Urol. **39**:471 (April) 1936.

Although Achorion gypseum as an etiologic agent in animal favus has been occasionally reported in Europe, it has not so far been observed in Japan. The authors report the cultural habits of the organism and the results of human and animal inoculation in two cases in which the manifestations were typical of infection with this fungus. Aside from producing the typical scutula in animals and in man, this fungus invaded the shafts of the hair, producing first meshed mycelial formations on the surface of the hairs and after about eight days its typical chains of spindle-shaped or rectilinear, square, oblong and rounded spores solely within the hair shafts. The author tentatively explains the formations on the surface of the hairs as an "initial invasion phase," as Sabouraud did in reports on other fungi.

J. W. BRENNAN, Chicago.

Society Transactions

MANHATTAN DERMATOLOGIC SOCIETY

ISADORE ROSEN, M.D., *Chairman*

Nov. 10, 1936

MIHRAN B. PAROUNAGIAN, M.D., *Secretary*

A Case for Diagnosis (Plummer-Vinson Syndrome [Microcytic Anemia]?)
Presented by DR. FRED WISE.

C. A., a woman aged 65, was first seen on Sept. 5, 1936, at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital exhibiting an eruption in the mouth of five years' duration. The patient was presented at the meeting of the dermatologic section of the New York Academy of Medicine in November (ARCH. DERMAT. & SYPH., this issue, p. 46).

DISCUSSION

DR. GEORGE C. ANDREWS: I think that the relation to intake of vitamins is interesting. This condition is usually associated with vitamin deficiency, and the patient says that for five years she has lived on practically nothing except milk and eggs, eating no vegetables, cereals or meats. While eggs and milk do contain certain vitamins, evidently the patient is not getting a sufficiently diversified diet.

DR. FRED WISE: The Plummer-Vinson syndrome is a condition with which I was unacquainted until Dr. Grace called my attention to it. I presented this patient for him. He told me that the symptoms shown by this patient correspond with those of microcytic anemia. I shall report on the further findings at a future meeting, after further investigation.

Pemphigus Vulgaris. Presented by DR. J. FRANK FRASER.

J. W., a Russian man aged 60, presents on the face, scalp and trunk crusted, scaling erythematous lesions, some of which are excoriated, and on the trunk several discrete bullous lesions. On the buccal mucosa and on the hard palate there are several crusted erythematous lesions and one small bullous lesion. There are denuded areas on the scalp, and marked thickening and scaling are present in some areas.

DISCUSSION

DR. HOWARD FOX: I think the disease is probably pemphigus vulgaris, although I do not see how any one can prophesy whether the future course will be mild or severe. I have been fooled a number of times by cases in which the involvement seemed to be relatively benign and suddenly became rapidly disseminated, a fatal termination resulting. I feel pessimistic about the value of any treatment for this disease.

DR. FRED WISE: I agree with the diagnosis of pemphigus, without any qualifications, because there are typical pemphigus lesions on the scalp and on the back and face. The only remedies I know to be of any definite value are arsenic in the form of injections of a 2 per cent solution of sodium arsenate and germanin. I have had both success and failure with both remedies.

DR. MIHRAN B. PAROUNAGIAN: I agree with Dr. Wise. In my opinion there is no doubt as to the diagnosis of pemphigus vulgaris. The ruptured bullae, the distribution and the general physical condition lead me to that diagnosis.

DR. ISADORE ROSEN: I agree with the remarks of Dr. Wise. If I saw the lesions on the face alone, I should make the diagnosis of pemphigus. My experi-

ence has been that in older patients the disease does not, as a rule, run such a rapid course. The lesions which this patient presents on the face and scalp are bullous, and they have been changed by topical applications. There are numerous bullous lesions on the trunk.

Lupus Erythematosus (Disseminated). Presented by Dr. Isadore Rosen.

E. P., a girl aged 12½, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, has a cutaneous condition which appeared on both upper extremities during the summer three years ago. It disappeared after a few weeks, leaving no marks. Nine months ago there developed on the interscapular region an eruption which still shows clinical evidence of atrophy and scaling. The eruption which is present tonight appeared last May; it consists of erythematous, slightly scaly atrophic lesions of butterfly distribution involving the cheeks and the nose. There are also isolated lesions on the forehead; these are especially marked above the eyebrows, and a few suggestive lesions are present on the lower lip. Only local treatment has been used. The venom test gave negative results. Ophthalmic examination showed no abnormalities.

DISCUSSION

Dr. Howard Fox: Dr. Peck stated recently that a test with snake venom provided valuable information as to the prognosis in cases of acute lupus erythematosus disseminatus.

Dr. George C. Andrews: I have used much streptococcus toxoid. One frequently observes severe reactions to it in apparently normal persons or in those who have eczema and various other diseases. The reaction in this patient undoubtedly shows a sensitivity to streptococcus toxoid, but that does not necessarily mean that the streptococcus has anything to do with the present cutaneous condition.

Chronic Type of Lupus Erythematosus Disseminatus. Presented by Dr. Isadore Rosen.

S. H., a boy aged 14, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, has a condition which started when he was 4 years old, appearing as butterfly-like lesions on both cheeks. In 1927, after ultraviolet irradiation, the lesions spread over the whole face and body. In 1930 and in 1931 the patient received injections of a gold preparation once a week, a total of from one hundred to one hundred and fifty injections being given. In 1932 he received two injections of an antisyphilitic drug. Since that time he has received no injections. The condition improves in the winter, with the exception of the lesions on the hands; there is an exacerbation in the spring. The lesions on the scalp show distinct atrophy. The face is diffusely involved. The lesions on the neck and breast are sharply defined and have slightly raised, infiltrated borders.

Roentgenograms of the lungs showed no abnormalities.

DISCUSSION

Dr. Max Scheer: The value of treatment with a gold compound seems to be much overrated. I have read of many cases in which it was used but have observed few cases in which the response was favorable. I have had better results with bismuth, with the Hollander treatment or with solid carbon dioxide.

Dr. Isadore Rosen: My experience with gold preparations has been much the same as that of Dr. Scheer. I have treated a number of patients with the discoid type of lupus erythematosus with bismuth, and the results have been much better than those obtained with gold. I think the mistake is often made of discontinuing administration of the drug too soon. I give three or four courses of from ten to twelve injections each, with rest periods between.

Dr. David Bloom (by invitation): In my experience, a gold compound is a more effective remedy for lupus erythematosus than a bismuth preparation.

I use the latter only when therapy with a gold compound does not bring any results. However, in one case of chronic disseminated lupus erythematosus in which the condition got worse after two injections of 5 and 10 mg. of gold sodium thiosulfate, bismuth brought about apparent improvement in the lesions. In my experience, a gold preparation has to be administered over a long period to be effective. I have presented before the Bronx Dermatological Society and before the Section of Dermatology and Syphilis of the New York Academy of Medicine, a patient with hyperkeratotic lupus erythematosus of the nose of many years' duration who responded with almost complete disappearance of the lesion, a smooth atrophic skin being left. As far as I remember, at least seventy injections of gold sodium thiosulfate were given. Several applications of solid carbon dioxide were used to hasten the disappearance of the remaining lentil-sized lesions.

A Case for Diagnosis (Lichen Planus?). Presented by DR. MAX SCHEER.

A. T., a housewife aged 26, born in the United States, was first seen today at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. She has an eruption on the right shoulder of one year's and one on the right thigh of six months' duration. On the anterior aspect of the shoulder the eruption is sharply defined, measures approximately 2 inches (5 cm.) in diameter, is brownish red and consists of numerous discrete and confluent scratched papular lesions. On the anterior aspect of the midportion of the right thigh there are several violaceous papules the size of a large pea, which are covered with adherent grayish white scales. In addition, the patient presents numerous discrete irregular depigmented areas the size of a pea and larger on both arms and forearms. There are no lesions on the oral mucosa. The patient also presents several irregular pea-sized violaceous papules covered with thin adherent grayish white scales on the back of the right shoulder.

DISCUSSION

DR. J. FRANK FRASER: I suggest the diagnosis of lupus vulgaris for the lesion on the thigh.

DR. GEORGE M. MACKEE: I suggest the diagnosis of neurodermatitis.

DR. ISADORE ROSEN: I suggest the diagnosis of neurodermatitis of the psoriasiform type. Some patients present lesions which clinically resemble psoriasis and neurodermatitis but which histologically rule out psoriasis. I therefore suggest the foregoing designation.

Chloasma. Presented by DR. J. FRANK FRASER.

S. C., a woman aged 27, was first seen at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital on Nov. 7, 1936, presenting on the left side of the forehead up to the hair line a brownish-pigmented flat macular lesion. The right side of the forehead and the chin are involved to a lesser extent. This lesion has been present for nine years. The patient is single and has never been pregnant. She has not used resorcinol.

DISCUSSION

DR. FRED WISE: I agree with the diagnosis of chloasma. From a perusal of the literature one gets the impression that vitamin C is of benefit in chloasma.

DR. MAX SCHEER: I suggest local application of 25 per cent ammoniated mercury. It should be applied at night and removed in the morning. Of course, a dermatitis develops, but it disappears.

DR. DAVID BLOOM (by invitation): I have noticed that the patient has acne vulgaris, and I should like to know whether resorcinol has been prescribed for her face. I have recently observed a brown discoloration of the skin following application of a 2 per cent alcoholic solution of resorcinol.

DR. GEORGE C. ANDREWS: The patient has had a great deal of trouble with menstruation, and there is a possibility that some endocrine product might help that as well as the chloasma.

Xanthoma Multiplex; Xanthelasma. Presented by Dr. Fred Wise.

C. M., a woman aged 56, was first seen on Sept. 29, 1936, at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, presenting an eruption involving the eyelids, knees, elbows, palms, large joints, postaxillary and axillary folds and soles. The eruption consists of grouped papular and macular, sharply defined bright yellow lesions situated chiefly around the large joints. The lesions of the palms as well as do those of the soles occur in linear streaks, and the flexures of the joints are especially involved. The lesions first appeared at the time of the climacteric, and since that time the patient has gained 20 pounds (9 Kg.). There is no history of excessive ingestion of carrots. She complains of loss of strength in her arms (although she looks well) and also has rheumatic pains in both knees. The caloric intake is to be reduced to approximately 2,500 calories, and a study of the blood cholesterol and a basal metabolism test will be made. A histologic examination made on Oct. 1, 1936, showed xanthoma.

DISCUSSION

Dr. Isadore Rosen: Regarding the treatment in these cases, I have had success by reducing the intake of fats and administering solution of calcium hydroxide. It might be worth while to try that procedure in this case.

Pigmented Nevus. Presented by Dr. Anthony C. Cipollaro.

R. B., a girl aged 14, first came to the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital on Aug. 10, 1936, to have several pigmented and hairy moles treated. The lesion on the lower lid of the left eye was treated with electrolysis on Aug. 10, 1936. On August 26 and on September 14 it was treated with solid carbon dioxide. A bluish discoloration the size of a pinhead was noted at the lower end of the lesion, and treatment was discontinued. The patient has been under observation for the past two months, and during this time no change has been noted in the blue portion of the nevus.

DISCUSSION

Dr. Andrew J. Gilmour: If a steel needle was used and the positive pole was employed instead of the negative pole, a pigmentation like that which is present could result.

Dr. George M. MacKee: It is rare for cancer to develop in a common mole. Not infrequently a diagnosis of melanoma has been made because of a bluish black lesion and microscopic study has shown only blood pigment or a blood cyst due to hemorrhage and blood pigment. In this instance I am inclined to think that as a result of the injury something like that has happened and that the pigmentation does not represent a danger signal. I am inclined to think that the condition is benign.

Radium Ulcer; Result of Treatment with the Leaf of Aloe Vera. Presented by Dr. Anthony C. Cipollaro.

J. S., a man aged 51, a glazer, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, had a sarcoma of the left eye which was treated with radium. The first treatment was administered in December 1931. In November 1935 the patient began to have severe attacks of sharp pain in the left temporal region. There were also swelling and marked redness. Within a few days the tissues broke down and an ulcer formed. He applied for treatment on Jan. 3, 1936. At this time, he was writhing in pain. He had an ulcer about the size of a dollar just posterior to the outer canthus of the left eye. It was sharply marginated and involved all the soft tissues. The surface was glistening and covered in part by a crust. The surrounding tissue was atrophic and depigmented and contained many telangiectatic vessels.

Treatment consisting of applications of the leaf of Aloe vera and of cleansing with saline solution was instituted. This gave immediate relief from pain. For about two months the lesion remained stationary; then it improved until the major portion of the ulcer was replaced by scar tissue. The surrounding skin also improved, the telangiectatic vessels becoming smaller and less numerous. Treatment was continued for ten months.

DISCUSSION

DR. GEORGE M. MACKEE: The ulcer has filled in, but it has not healed. I am not certain that the result is entirely due to the therapy. The leaf of Aloe vera has been used for ten months. I have seen radium ulcers improve spontaneously in three or four months. To show good results from the treatment one would have to obtain quick results in long-standing ulcers. So far as the alleged effect on the telangiectasia is concerned, I doubt whether the treatment is responsible. I have observed some cases in which telangiectasia slowly disappeared in from ten to fifteen years without treatment. In this case, the leaf of Aloe vera appeared to relieve severe pain promptly; even so, I am not certain that application of it is always the treatment of choice. The scar is always a menace, especially in a young person. I still think that plastic repair, when it can be performed, is the best treatment.

DR. HOWARD FOX: The two striking features of third degree radiation burns are severe pain and chronicity. It has been shown on more than one occasion that application of the leaf of Aloe vera stops the pain quickly. Evidence is much less conclusive that it aids the healing of the ulcer. I agree with Dr. MacKee that in this case it has not proved of much value as a healing agent. I feel sure that it had no effect on the telangiectasia, as in my opinion there is no satisfactory treatment for that condition. Such changes, I think, tend to increase rather than to decrease in the course of time.

DR. GEORGE C. ANDREWS: An ulcer developing five years after treatment and being as painful as the one which the patient had would lead one to suspect that there might be a bony necrosis over which the skin ultimately broke down. I think that a roentgenogram of the skull should be taken to ascertain whether the bone shows evidence of necrosis. The juice of Aloe vera makes an excellent wet dressing, and the results obtained from it might be equaled by those of a wet dressing of another kind as far as relief from pain goes. Relief might be due not to the plant but simply to the mechanical effect of a wet dressing. I know that in some cases treatment with the leaf of Aloe vera has worked well and that in other cases it has failed. The benefits from it are often those that would result from a wet dressing. However, in other cases there seems to be a specific benefit unequalled by anything else.

DR. ANTHONY C. CIPOLLARO: There are two things about this case that impressed me: (1) the leaf of Aloe vera had an anodyne effect on this patient, and (2) the continued use of it caused active granulations to develop. Within several weeks the ulcer began to fill in, and improvement was slow but progressive. I have used an ointment containing aloe in treating ulcer caused by radium and roentgen rays and sequelae of irradiation, such as telangiectasia and keratoses, without any beneficial effects.

A Case for Diagnosis (Pityriasis Rosea?). Presented by DR. FRED WISE.

L. H., a housewife aged 30, born in Puerto Rico, was first seen today at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. She has a generalized eruption of four weeks' duration. She states that she had taken thyroxin tablets for four weeks before the onset of the eruption. She presents discrete confluent annular lesions measuring ½ inch (1.27 cm.) in diameter. These lesions are reddish brown and covered with fine adherent grayish white scales. The one large lesion on the dorsal aspect of the left thigh shows a central depression and a definite infiltration of the border. On the left clavicle

the patient presents an irregular lesion about 3 inches (7.5 cm.) in diameter, moderately erythematous and slightly scaly. There are a few scaly lesions on the chest. A blood test was made today.

DISCUSSION

DR. GEORGE M. MACKEE: I think that the eruption is due to fungi or their products.

DR. MIHRAN B. PAROUNAGIAN: The distribution, the oval lesions and the fact that the involvement is more marked on the trunk than on the extremities suggest to me the diagnosis of pityriasis rosea.

DR. ISADORE ROSEN: I agree with Dr. Parounagian that this condition is probably pityriasis rosea. It is not unusual to see lesions in localized areas weeks before the typical picture of the disease develops.

Pigmented Nevus. Presented by DR. J. FRANK FRASER.

G. D., a man aged 33, was first seen on Nov. 7, 1936, at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. He has a lentil-sized flat soft slate-colored macule on the left side of the lower lip. In the center of the lower lip is a spot which is similar but much paler and smaller. The patient thinks that the lesions may have been present for at least eight years, but he states that the large lesion has become much darker in the past year.

DISCUSSION

DR. GEORGE M. MACKEE: I have never known what to call such lesions. I do not know what therapy to use, and I have never seen them result in anything serious. If the patient insists on having the lesions removed for esthetic reasons, I should prefer to have them excised, not because of their nature but because other destructive methods are likely to leave disfiguring scars.

Keloid Following Removal of a Tattoo Mark. Presented by DR. ANTHONY C. CIPOLLARO.

A. C., a boy aged 17, applied at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital on May 6, 1936, for the removal of a tattoo mark. It measured approximately 2½ inches (6.5 cm.) in diameter, was flat and had both blue and red pigment. It was treated with blistering doses of solid carbon dioxide from May 29 to June 24, 1936, without improvement. On June 26 the lesion was infiltrated with a 2 per cent solution of procaine hydrochloride and curetted. This was followed by the application of a 50 per cent solution of tannic acid and silver nitrate. On September 28 keloids were noted. Some improvement in the keloids followed treatment with fractional doses of unfiltered radiation.

DISCUSSION

DR. HOWARD FOX: This is another illustration of the difficulty of removing tattoo marks without producing deforming scars. I have rarely seen excellent results follow any method of treatment.

DR. ANTHONY C. CIPOLLARO: The results following the treatment of tattoo marks are poor at best. I have obtained the best results with excision of small areas and with application of tannic acid and silver nitrate on larger lesions.

Results of Roentgen Treatment of Basal Cell Epithelioma by the Coutard Method. Presented by DR. GEORGE C. ANDREWS.

C. W., a man aged 57, was first seen on Sept. 3, 1936, when he stated that a lesion had been present on his neck for two years. It was treated with desiccation, ultraviolet irradiation and application of ointments. There is a deep oval ulcer, 7 cm. in length by 4 cm. in width, which has rolled edges. In addition, there are a smaller crusted epithelioma on the left side of the neck below the ear and a superficial epithelioma of the right pectoral region. Histologic exami-

nation showed a tumor composed of masses of large basal cells; this was treated with roentgen rays by the modified Coutard method as follows: Six weeks ago 300 roentgens (using 160 kilovolts filtered with 0.25 mm. of copper and 1 mm. of aluminum) was given daily to alternate sides of the lesion for eight days. A photograph is presented to show the results of this treatment. The lesion has almost completely disappeared.

DISCUSSION

DR. GEORGE M. MACKEE: The result is perfect. If the lesion had been destroyed by electrosurgery, the cosmetic result would not be so good. My impression is that the results obtained with the Coutard technic and with the ordinary technic are about the same, that is, in treatment of basal cell growths.

DR. HOWARD FOX: Dr. Andrews has achieved a remarkably good result in this case. The only objection to the method he has used is the time which it consumes.

ANDREW J. GILMOUR, M.D., *Chairman*

Dec. 8, 1936

MIHRAN B. PAROUNAGIAN, M.D., *Secretary*

Extensive Naevus Pigmentosus. Presented by DR. ANTHONY C. CIPOLLARO.

M. S., an American girl aged 2 months, was born with extensive pigmented areas. The back from the neck to the buttocks, the chest, the abdomen and the thighs are dark brown. On the scalp and on the face are coin-sized dark brown pigmented lesions. In some areas the pigmentation is almost black. The central portion of some of the lesions on the scalp show darker and coarser hair than is normal for this infant.

DISCUSSION

DR. GEORGE M. MACKEE: I should do nothing to the lesions on the body. They are too extensive, and they contain areas of a gun-metal or bluish black color. The lesions on the face are brown and because of their location are especially objectionable. I should treat them with solid carbon dioxide. The lesions on the scalp may be let alone, for they are inconspicuous because of the hair.

DR. JEROME KINGSBURY: I agree with Dr. MacKee as to the lesions on the body. I feel that the lesions on each cheek could be removed safely. I think that excision would be a better treatment than application of a destructive agent.

DR. MAX SCHEER: I wish to ask Dr. MacKee how one can tell which brown lesions may safely be treated and whether the presence or the absence of hair on the lesions makes any difference.

DR. GEORGE M. MACKEE: The presence or absence of hair alone is not an indication of safety or of danger, and color alone cannot be accepted as an index of danger or safety. I have found that the ordinary brown or flesh-colored mole, with or without hair, is not dangerous. I think that pigmented verrucae have dangerous potentialities. I regard the gray and bluish black macules and papules, with or without hair, as the most dangerous, especially when they are subjected to repeated injury. These statements are based on clinical experience and clinical impressions, not on scientific knowledge.

A Case for Diagnosis (Dermatophytid? Moniliasis?). Presented by DR. J. FRANK FRASER.

C. A., a housewife aged 32, an American, was first seen at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital on June 9, 1936, presenting an eruption of pityriasis rosea. At that time she complained of menorrhagia and was referred to the gynecological clinic. It was

felt that she had endocrine disturbances, and she was given injections of a soluble extract of the anterior lobe of the pituitary, which relieved the menorrhagia. The patient returned to the dermatologic clinic on Nov. 24, 1936, exhibiting scaly oval erythematous lesions on her cheeks and extremities. This was a mongrel sort of eruption, and no diagnosis was made at that time. She again applied for treatment on Dec. 5, 1936, presenting many irregular scaly erythematous lesions; the eruption was especially marked on her thighs. It was noted that the soles presented deep-seated pea-sized papules. The patient stated that she had taken no drugs. A Wassermann test made on June 9, 1936, was negative.

DISCUSSION

DR. GEORGE M. MACKEE: I doubt that the condition is pityriasis rosea.

DR. LUDWIG B. OULMANN: My diagnosis is dermatophytosis of the soles and interdigital spaces of the toes and a dermatophytid of the palms and trunk. The condition is the same as that of the boy who was presented at the last meeting.

DR. J. FRANK FRASER: Other diagnoses, such as a drug eruption, moniliasis and parapsoriasis, have been considered.

Dermatitis Factitia. Presented by DR. ANTHONY C. CIPOLLARO.

G. W. T., a woman aged 55, born in the United States, the wife of a physician, had two "experimental" roentgen irradiations to the lateral aspects of the right ankle about thirty-eight years ago. Two months later the anterior surface of the right ankle was injured and an ulcer formed. The leg was immobilized for seven months; it did not completely heal until about one year after the roentgen irradiation had been given. During the past thirty-eight years this area has ulcerated after slight trauma and has healed slowly. All the remedies recommended for ulcerations have been used at one time or another. The condition as it is now has been present for five months. At present, on the anterior surface of the right ankle is an ulcer measuring 12 by 5 cm. Immediately above this is a smaller ulcerated area which is perfectly round and about the size of a dime. The surface of the ulcer is bright red and irregular, simulating a relief map. There is no exudation or false membrane. The skin surrounding the ulcer is atrophic, but there are no telangiectases, no pigmented or depigmented areas and no keratoses. The patient has no pain except when she moves the extremity. She has undergone a general medical examination, and a chemical examination of the blood, a Wassermann test and a histologic examination were made eight years ago. The results of these studies were negative.

DISCUSSION

DR. GEORGE M. MACKEE: The ulcer is of the indolent type and can readily be mistaken for radiodermatitis. It disappears or improves and then breaks down again. Therefore, I do not think that it is radiodermatitis. I agree with the diagnosis of dermatitis factitia. As I have no complete knowledge of the case, I do not know whether the lesion was inflicted by the patient or is a neurotic excoriation. I suggest that a neurologic examination be made and an occlusive dressing applied. A plaster of paris dressing should be applied from the knees to the toes.

DR. MIHRAN B. PAROUNAGIAN: I am rather reluctant to accept the diagnosis of dermatitis factitia because of the fact that the patient seems to be intelligent. She is a physician's wife, and I cannot understand how she would want to cause such an amount of destruction. The condition is chronic dermatitis, but the etiology is unknown.

Congenital Defect. Presented by DR. ANTHONY C. CIPOLLARO.

M. H., a girl aged 18, born in Cartagena, Colombia, states that she has always been in excellent health but exhibits a deformity of each hand and of

the left leg, the deformities having been present since birth. There are no subjective symptoms accompanying these conditions. As to the deformity of the leg, the patient states that it does not interfere with her activities in any way; she dances and hikes. Prolonged standing or walking occasionally causes a little more swelling of the left than of the right ankle. There is an area of constriction of the left leg at the junction of the middle and the lower thirds. The constriction extends about 1½ inches (3.5 cm.) and completely encircles the leg. There appears to be complete absence of muscular and subcutaneous tissue. No changes are noted in the overlying skin. The foot and ankle have all the normal functions and movements. Just above this lesion there is a smaller constriction. A roentgen examination showed the bones of the leg to be normal. The hands present a congenital absence of the fingers. Palpation shows that small bones suggestive of short phalanges are present in the skin, the skin tending to form a web over these bones. Both parents are alive and well. The patient has no brothers or sisters. She presented herself for advice concerning the repair of the defect of the leg.

DISCUSSION

DR. JEROME KINGSBURY: I do not believe that it would be advisable to attempt to correct the condition of the leg by plastic surgery.

DR. LUDWIG B. OULMANN: I believe a plastic operation can fill in the defect on the leg. It is also possible that the hands may be improved where the fingers are grown together. Nevertheless, I believe nothing should be done about the hands, as the girl has acquired the full use of them.

DR. ANDREW GILMOUR: Since her bones seem normal (below the band her leg is cold and above it it is warm), I do not suggest plastic repair.

DR. ANTHONY C. CIPOLLARO: One must bear in mind that function is normal. The muscular and subcutaneous tissues are absent; yet the blood supply, the innervation and the tendons are apparently unaffected. The point I raise is this: Will it not be dangerous to attempt to correct an anatomic defect and in so doing possibly endanger the normal function which the patient now enjoys?

Cornu Cutaneum. Presented by DR. PAUL E. BECHET.

B. R., a woman aged 51, born in Ireland, was first seen today at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. She presents a lesion on the left side of the neck of three months' duration. The patient states that before this lesion developed there was no noticeable mark on the skin. At this time she presents on the anterior aspect of the left side of her neck an elongated lesion measuring about ½ inch (1.3 cm.) in length. The distal three fourths of the lesion is grayish brown and consists of firm horny material. The proximal one fourth is covered with firm glistening epidermis showing a suggestion of rolled border and numerous small telangiectases, suggesting an epithelioma. The entire mass is attached to the skin of the neck by a thin pedicle. There appear to be no definite changes in the skin at the point of attachment.

DISCUSSION

DR. GEORGE M. MACKEE: I agree with the diagnosis. I also agree that there is no evidence of epithelioma. The lesion can be removed by electrodesiccation, as it is not a dangerous one.

DR. MIHRAN B. PAROUNAGIAN: I suggest that a histologic examination be made. Most of these lesions are degenerative.

A Case for Diagnosis (Lupus Erythematosus? Chloasma?). Presented by DR. J. FRANK FRASER.

C. C., a Negress aged 37, a hand-ironer, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, states that in March

1936 she noticed on the right side of her face between the nose and cheek a small red pimple which itched slightly. The following June she consulted a physician, who made a blood test and gave her six intravenous injections of a yellow fluid and three injections in the hip. After the third injection an itchy rash appeared over the entire body. The rash disappeared with considerable peeling, leaving areas of pigmentation on both shoulders. At present there are a pigmented area on the face and an erythematous raised plaque about 1 by 2 cm., showing follicular openings and considerable induration. The patient does not state when the pigment first appeared on the face.

DISCUSSION

DR. ANTHONY C. CIPOLLARO: The lesion on the right side of the nose of this patient has characteristics of both lupus erythematosus and sarcoid of the Boeck type.

DR. LUDWIG B. OULMANN: The three areas of the face, as well as a number of smaller lesions on the arms, are all alike, and my diagnosis is lupus erythematosus. There is no pigmentation, but the lesions are reddish and inflammatory, as is often the case in Negroes. Treatment with a gold preparation will cause them to clear up.

DR. GEORGE M. MACKEE: Chloasma appears to be present. Some of the lesions suggest the nodular type of lupus erythematosus. The fact that at times the eruption improves greatly speaks against sarcoid, a diagnosis that has been suggested. A drug eruption must be ruled out.

DR. MIHRAN B. PAROUNAGIAN: I do not think that the pigmentation is due to the slight amount of arsenic the patient has received. I agree that the condition is lupus erythematosus.

DR. ANDREW J. GILMOUR: I think that lesions in Negro skin are hard to diagnose on one inspection. The lesion on the right side of the nose is indurated. I asked the patient about ingestion of drugs, but she said that she had taken no medication.

DR. J. FRANK FRASER: I believe that the lesion on the right side is lupus erythematosus, possibly the nodular type mentioned by Dr. MacKee. I shall endeavor to make a histologic examination and report the results at the next meeting. In regard to the chloasma, as Dr. Parounagian states, it might not have been produced by the arsenic. On the other hand, it is well known that occasionally this condition does result from injection of arsenic. The gynecological aspects of the case have been investigated, and I feel certain that the condition is not uterine chloasma. I also feel certain that the eruption which followed the third intravenous injection was an arsenical dermatitis.

DR. DAVID L. SATENSTEIN: I think that the condition is ordinary chloasma and has nothing to do with arsenic.

Rosacea-Like Tuberculid of Lewandowsky. Presented by DR. PAUL E. BECHET.

L. F., a woman aged 39, born in the United States, was first seen at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital on Nov. 24, 1936, exhibiting an eruption on the cheeks of eighteen months' duration. On the face and cheeks are numerous violaceous red papules showing erythema and some telangiectasia. Rosacea is also present. There are some pitted follicular scars. The histologic examination confirms the diagnosis.

DISCUSSION

DR. LUDWIG B. OULMANN: I cannot see the rosacea-like feature, and I regard the condition as miliary lupus.

DR. GEORGE M. MACKEE: There is no rosacea element. There are no acuminate papules with pustular tops. The papules are too large. I am,

therefore, inclined to consider the disease as miliary lupus, although it may be a borderline condition between miliary lupus and rosacea-like tuberculid. It certainly is not typical rosacea-like tuberculid.

DR. MIHRAN B. PAROUNAGIAN: I agree with Dr. MacKee that the condition is more likely to be lupus miliaris.

DR. FRANK GRAUER (by invitation): I agree with what Dr. MacKee has said. If I were called on to make a clinical diagnosis, I should say that the disease is probably Lewandowsky's tuberculid. In most of the cases that I have observed, however, there has been more erythema. This eruption, moreover, presents certain features suggestive of lupus miliaris disseminatus faciei. Certain borderline conditions are difficult to diagnose clinically, and the reaction to tuberculin as well as the histologic picture must be given due consideration.

DR. PAUL E. BECHET: I think as many as possible of these borderline conditions should be presented in order that some day a fixed opinion as to the clinical appearance of Lewandowsky's tuberculid may become established. Of course, it is difficult to make the diagnosis on the basis of a cursory inspection, but this patient presents numerous pinhead papules with rosacea and telangiectasia and a few pustules. Erythema is also present. The section supports the clinical diagnosis. In consideration of these facts, Lewandowsky's disease seems the most plausible diagnosis.

Raynaud's Disease with Scleroderma. Presented by DR. ANTHONY C. CIPOLLARO.

A. A., a man aged 26, born in the United States, of Italian parentage, states that for several years he has had blanching, cyanosis and erythema of the fingers and hands, the blanching being more severe on exposure to cold and the cyanosis and erythema more severe on exposure to heat. He has also noticed that the fingers seem to have been swollen and that stiffness has gradually developed. No other symptoms are present at this time. The patient does not smoke. In May 1935 there were sclerodermic changes on the forehead and upper portion of the cheeks and difficulty in wrinkling of these parts. Some atrophic changes were noted on the finger-tips. Oscillometric readings were normal. Capillary studies showed loops typical of Raynaud's disease. From May to November 1935 the patient received eighteen injections of tissue extract and appeared to be improving. In November treatment with mecholyl by iontophoresis was started, the treatments being given three times a week. Early in 1936 the patient burned the tip of the second finger of the left hand. This became infected, and although the infection was cleared up with wet dressings, the lesion did not heal. The mecholyl iontophoresis was continued until February, but no improvement resulted. Then suction pressure treatments were given, and the ulcer on the finger began to heal in a few days, but healing was not complete until May 1936. The treatments from February until May consisted of suction and pressure and of mecholyl iontophoresis administered on alternating days.

DISCUSSION

DR. GEORGE M. MACKEE: I agree with the diagnosis, for I think the condition is Raynaud's disease with scleroderma-like changes and not true scleroderma.

Pityriasis Rosea with Palmar Lesions. Presented by DR. MAX SCHEER.

J. V., a man aged 29, a clerk, born in the United States, was first seen on Nov. 19, 1936, at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, exhibiting a generalized eruption of two weeks' duration. The eruption, which is most marked on the extremities and trunk, consists of numerous discrete pale red papular squamous lesions covered with a thin grayish white adherent scale. The patient also presents a few discrete erythematous macular lesions involving both palms. Maceration and scaling

between the toes is evident. The patient states that the eruption appeared about one week after he had taken some pills prescribed by a local physician. The examination for tinea of scrapings of the feet gave negative results. Wassermann, Kahn and Kline tests gave negative results. The lesion on the right hand was excised for microscopic examination. There is considerable edema in the cutis; it is most marked in the papillary zone. The vessels in the upper portion of the cutis are dilated and around them there is a moderate small round cell infiltrate with some connective tissue cells. The epidermis shows a considerable irregular acanthosis. The basal cells are quite large. The horny layer is to a large extent parakeratotic.

DISCUSSION

DR. GEORGE M. MACKEE: The condition may be the end-stage of pityriasis rosea. Six weeks is not a long time for the end-stage to appear. It is more likely to appear after two or three months. Dr. Scheer saw the patient when the condition was in the florid state; I am willing to take his word that it is pityriasis rosea. From the present appearance I should not make that diagnosis. The eruption looked to me more like dermatophytosis, a dermatophytid or a drug eruption.

DR. PAUL E. BECHET: I think that the burden of proof so far as the diagnosis of pityriasis rosea is concerned is on Dr. Scheer. The lesions around the ankles strongly resemble dermatophytosis. I think that that diagnosis should be taken into consideration. The patient has a group of healing vesicles on the sides of the feet which are suggestive of tinea.

DR. ANDREW J. GILMOUR: The lesions on the feet, especially those on the right sole, suggest to me a diagnosis of dermatophytosis.

DR. LUDWIG B. OULMANN: I consider the condition to be dermatophytosis.

PHILADELPHIA DERMATOLOGICAL SOCIETY

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Nov. 20, 1936

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Lupus Vulgaris. Presented by DR. JOHN B. LUDY.

M. D., a Negro aged 55, presents a granulomatous patch over the greater part of the right side of the face. The eruption appeared when the patient was a child and has persisted. A histologic examination made two years previously showed tuberculosis, but roentgen examination of the chest showed no evidence of the disease. In 1935 the patient was greatly improved as a result of treatment consisting of application of a 5 per cent solution of potassium permanganate twice daily. He neglected treatment, with the result that at present the condition has relapsed to its former state.

DISCUSSION

DR. C. GUY LANE, Boston (by invitation): At the Massachusetts General Hospital my co-workers and I employ a method of treatment which I think might be helpful in this case, though it is relatively radical for such a large area. In some cases in which the involvement is not too extensive we give a general anesthetic and curet the affected part thoroughly, using a sharp curet. With the curet it is fairly easy to differentiate between lupus vulgaris tissue, which is soft, and the surrounding healthy tissue. Then we cover the whole area with iodine. It creates a reaction, but we have obtained successful results in many cases, and the scarring is not bad.

Lupus Erythematosus of the Scalp, Eyelids, Conjunctiva, Mouth and Face. Presented by DR. JOSEPH V. KLAUDER.

W. S., a man aged 52, has lupus erythematosus of the scalp, eyelids, conjunctiva, mouth and face. The palpebral conjunctiva of the left eyelid exhibits a raised, velvet-like, sharply marginated edema with no evidence of atrophy. The upper and lower right eyelids show atrophy of the skin and absence of cilia. There are patches on the buccal mucosa, an atrophic area on the scalp and typical lesions of lupus erythematosus on the nose and back of the left ear. The patient has received a large amount of a gold preparation intravenously and a bismuth preparation intramuscularly, and considerable improvement has resulted. The conjunctival lesions have been more resistant to treatment than the other involved areas. The duration of the condition is seven years. This case was described in the *Archives of Ophthalmology* (Klauder, Joseph V., and DeLong, Perce: Lupus Erythematosus of the Conjunctiva, *Arch. Ophth.* **7**:856-867 [June] 1932).

DISCUSSION

DR. C. GUY LANE, Boston (by invitation): Does the condition respond to treatment with a gold preparation?

DR. JOSEPH V. KLAUDER: Yes, and it also responds to administration of bismuth. I had never seen lupus erythematosus of the conjunctiva until I worked at the clinic of the Wills Hospital, where the majority of patients suffer from ocular disease and sometimes from cutaneous conditions in addition. In that clinic I have seen three patients with lupus erythematosus of the conjunctiva. I think the condition is more common than is generally believed. I examine the conjunctivae of all patients with lupus erythematosus as a routine. Lupus erythematosus of the conjunctiva is characterized by extreme redness of the conjunctiva associated with a velvet-like edema involving the exposed surfaces of the upper or lower lids. Later atrophy may ensue; it is manifested by the presence of white dry depressed areas. In my experience the disease of the conjunctiva has been more resistant to treatment than have cutaneous lesions.

Rosacea with Associated Rosacea of the Cornea. Presented by DR. JOSEPH V. KLAUDER.

W. R., a man aged 60, has rosacea of twenty-five years' duration. He presents telangiectasia of the nose, erythema of the center of the face and a few papules and pustules. Examination of the eyes reveals many opacities on each cornea and corneal ulceration. There is an associated marked pericorneal injection. The palpebral conjunctivae of both eyes are markedly congested. Both eyes are highly irritable. The duration of the ocular disturbance is one year. Otherwise the history and the results of physical examination are essentially irrelevant.

DISCUSSION

DR. C. GUY LANE, Boston (by invitation): The thing that has interested me at the Massachusetts General Hospital is the fact that ophthalmologists make a diagnosis of rosacea keratitis and refer the patients to the dermatologic service when they exhibit comparatively mild manifestations of rosacea, hardly enough to permit an ophthalmologist to recognize the rosacea. However, the manifestations on the cornea are sufficient for the ophthalmologist to make a diagnosis.

DR. DONALD M. PILLSBURY: In a series of one hundred cases of rosacea reported by Beerman and Stokes there were about five cases of rosacea keratitis. I should like to record one case of rather persistent keratitis in which the condition did not clear up until four or five applications of unfiltered radiation, 35 roentgens being given at each session, had been made to the unprotected eye, the eyelids being closed.

DR. JOSEPH V. KLAUDER: Does any one know what percentage of patients with rosacea have involvement of the cornea? I believe rosacea is more common in Great Britain than in this country. It seems that if the skin clears up, no new lesions appear on the cornea. Intramuscular injections of sterile milk seem to be helpful in treating the corneal lesions.

Prurigo Nodularis. Presented by Dr. Joseph V. Klauder.

L. W., a man aged 54, presents a great number of nodules on the anterior surfaces of both legs and on the flexor surface of the right wrist. The lesions are discrete, about the size of a finger nail, firm and verrucous. Their duration is four years. The patient complains of considerable itching at the site of each lesion. Histologic examination shows marked hyperkeratosis and acanthosis. The Wassermann reaction of the blood was negative. The lesions have been resistant to treatment. Recently a dressing of zinc oxide gelatin has been employed and allowed to remain on the lesions for from one to two weeks. When it was removed the lesions were macerated, softer, flatter and less itchy. That treatment, which is more effective than any other, is being continued.

Note.—After the patient was presented amyloidosis cutis was excluded on the basis of a negative reaction to subcutaneous injection of a solution of congo red.

DISCUSSION

Dr. Frank C. Knowles: This is an extremely interesting case, but I think there are certain points which must be considered: 1. In prurigo nodularis the lesions generally have a tendency to be smooth and to show a rather keratotic or papillomatous surface. 2. I think the majority of the members who have observed cases of this condition have rarely, if ever, seen the lesions running together and forming a distinct patch such as this patient has on his arm. 3. This patient also has lesions on the inner surface of both cheeks which suggest leukoplakia. However, I think those lesions are rather superficial and have the appearance that is seen after local application of silver nitrate rather than the pure white character of leukoplakia. In view of these features and of the presence of atrophic lesions, I am inclined to suggest the diagnosis of hypertrophic lichen planus.

Dr. Fred D. Weidman: I have done much work on this man in the last two years. He had a basal cell cancer at the nape of the neck and has received a great deal of radiation, which may account for the changes in his buccal mucosa. In hospitals where large numbers of cancers of the lip and mouth are treated it is not unusual to observe definite leukokeratosis. When I first saw the lesions on the legs I thought of a mycosis and made several cultures. Five or six biopsies have been made. I finally cultured a thread organism—a leptothrix. I injected material from the culture into the patient's leg and made control tests, and I was successful in reproducing the lesion. I repeated the test and was not successful; but I then found that the strain had died out, and I could not follow that line of inquiry. My next thought was hypertrophic lichen planus, but lesions have been definitely suppurative in the past. By tonight the suppuration has disappeared. When Dr. Klauder suggested prurigo nodularis last week, I thought that was probably the best diagnosis, particularly since the patient then complained of marked itching. But the next day when I saw him at the clinic and inquired into the history of itching more exactly, he said that the itching had been present only lately and that in the early stages it was not marked. So now I do not know what the diagnosis is. I surmise that the condition is a fungous infection and that the case will have to be studied more extensively with that fact in mind.

Dr. Joseph V. Klauder: How does the histologic picture fit in with the diagnosis of hypertrophic lichen planus?

Dr. Fred D. Weidman: The picture of hypertrophic lichen planus is not as distinctive as that of acute lichen planus; so that does not mean much. The picture could be compatible with lichen planus or, for that matter, with any chronic irritative hyperkeratotic disease. But the suppurative features were definite in the earlier stages.

Dr. Donald M. Pillsbury: I suggest the diagnosis of amyloidosis cutis. That disease may simulate hypertrophic lichen planus closely, and I think it might be well to consider it.

DR. VAUGHN C. GARNER: I think that many authorities concede that prurigo nodularis is only a form of lichen planus; so perhaps there is not as much disagreement as would at first appear.

Senear-Usher Syndrome. Presented by DR. S. R. KAUFMAN, Wilkes-Barre, Pa.

R. D. L., a woman aged 55, presents a markedly erythematous lesion on the left side of the face. On the upper portion of the back, on the chest and on the outer aspect of the upper portion of the arms are numerous bullae and healing remains of former lesions in the form of blood crusts and discrete scaly, shiny areas, which are almost confluent on the back. The lips and oral mucous membrane also show evidence of similar lesions. There is a long-standing patch of lupus vulgaris on the left cheek and ear, and there are scars of healed lesions on both thighs. At the age of 9 years the patient noticed a small area of induration on the left cheek, and the lesion spread. For the past ten years it has remained stationary. In 1931 she first noticed on her back small pimples, some of which were itching, which later formed big blisters. Treatment has consisted of intravenous administration of sodium thiosulfate and a 25 per cent solution of dextrose and of local application of soothing lotions.

DISCUSSION

DR. ROBERT L. GILMAN: Since I became interested in this syndrome I have observed at the Philadelphia General Hospital cases in which the condition simulated Duhring's disease, and in some of these I was inclined to make a diagnosis of that disease.

The Senear-Usher Syndrome. Presented by DR. EDWARD F. CORSON.

J. S., a man aged 45, was admitted to the hospital on Aug. 17, 1936. Fourteen months previously a pustular or seborrheic eruption had appeared on the right side of the nose, over the shoulders and over the sternum. As this cleared the affected areas became red, scaly and fissured. The condition remained stationary until three months ago, when it began to spread over the entire body. The face, the scalp, the torso, the legs to the knees and the arms to the middle of the forearms were involved. Large bullae with crusting of a seborrheic type then appeared on the trunk. Large patches had a circinate border, and the diagnosis of the Senear-Usher syndrome was made early in July 1936. After six weeks of treatment received at home out of the city, the patient was hospitalized, and the appearance of the eruption soon justified the diagnosis of pemphigus. Large bullae, both tense and flaccid, appeared on his trunk and extremities; his lips had the crusted appearance often associated with that condition, and there were a few lesions on the buccal mucous membrane. The auditory canals were closed by swelling (probably caused by furuncles). There were also a few furuncles on the chest, neck and arms. The pulse rate and the temperature were elevated for several weeks, and the patient appeared acutely ill. Gradually, after much desquamation, the skin returned to normal, but furuncles continued to appear occasionally. As the patient improved, however, greasy keratotic formations, usually about 1 cm. in diameter, appeared, affecting largely the trunk, the upper parts of the extremities and the temples. The palms were free from keratoses. A section from one lesion is exhibited. The patient is gaining weight and strength at present. It is not definitely known whether he received arsenic before his admission to the hospital.

The results of examinations of the blood were as follows:

Date	Hemoglobin Content, Percentage	Number of Red Cells	Number of White Cells
8/18/36	78	5,150,000	16,300
8/26/36	58	4,500,000	13,700
9/26/36	70	3,950,000	9,800
10/15/36	51	5,050,000	10,700
11/ 9/36	66	3,210,000	6,700

Cultures from the lesions yielded staphylococci. Urinalysis showed a distinct trace of albumin, and blood was present in most specimens. The sugar content of the blood was 73 mg. per hundred cubic centimeters.

On admission the patient was given a 5 per cent solution of dextrose by intravenous drip and colloid baths, but the condition became steadily worse. A transfusion of 250 cc. of whole blood given on September 3 was followed by rapid improvement. After receiving 300 cc. of blood in a second transfusion on October 3, he improved. He also received viosterol and iron and ammonium citrates.

DISCUSSION

DR. FRED D. WEIDMAN: I doubt that the condition is the Senear-Usher complex. That disease is essentially superficial, and at present the skin, particularly around the face, is much thickened. I think the swelling is more than edema; I believe it is a cellular infiltration. The face is not quite leonine, but it approaches that appearance. I think that a type of lymphoblastoma may develop. On two or three occasions the white blood cell count was high; however, there is a history of the presence of suppurative lesions on the skin which may, of course, account for the leukocytosis. I should think seriously of the possibility of lymphoblastoma, and I believe that further studies are necessary, particularly biopsies of the lymph nodes and examination of sternal bone marrow.

DR. EDWARD F. CORSON: When I first saw the patient in June or July he had an eruption over the nose which was rather superficial. He had seborrheic patches over the shoulders and a number of bullous lesions on the back and front of the trunk. After an interval of two months he came back from his home and was admitted to the hospital, and at that time the bullous eruption was the feature that claimed attention. He had large numbers of bullae, not only on the trunk but on the extremities, especially on the feet. The eruption on the nose gradually faded, and now it is practically absent. Furuncles were present at all stages of the disease, even when the patient was seen in July. Some of them can be seen tonight. The skin exfoliated after the bullous features had improved, and then it began to assume a seborrheic character, with thickening and with great numbers of more or less keratotic lesions on the temples, cheeks and other parts of the body, which are still present. There has been a steady progression from (1) a condition suggestive of the Senear-Usher syndrome through (2) a pemphigoid phase to (3) a condition simulating a type of lymphoblastoma, such as is present now. There is nothing highly significant, as I recall, in the proportion of the blood cell count. It is not known whether the patient took any arsenic before he came under my observation. He had taken arsenic for about a week in July after a visit he made to my office, but after that he did not take it any more. In the hospital during the pemphigoid period he received two transfusions which seemed to improve the pemphigus.

DR. FRED D. WEIDMAN: The scaly features are not incompatible with the premycotic stage of lymphoblastoma. I recall a case of Hodgkin's disease in which autopsy was performed. The patient had been examined by a number of dermatologists, one of whom had made a diagnosis of psoriasis.

A Case for Diagnosis. Presented by DR. HENRY B. DECKER, Camden, N. J., for DR. FRANK C. KNOWLES.

H. C., a woman aged 30, presents on the right arm a raw ulcerated area almost completely encircling, and extending up well above the middle of, the member. The lesion involves the entire thickness of the skin and is sharply demarcated from the surrounding tissue. The edges tend to be undermined. The raw surface varies from pink to bright red, is granular and is covered with a thin layer of green crust. Two years ago last June the patient noticed a small "pimple" on the posterior surface of the right arm well above the elbow. It increased in size, finally becoming about as big as a lemon. The growth was

painless. After it had been incised by her family physician it broke down and spread rapidly. In a short time the ulceration spread from the elbow 6 or 8 inches (15.2 or 20.3 cm.) up the arm, almost encircling the limb. Five roentgen treatments were given before the patient's admission to the hospital.

On June 16, 1936, the hemoglobin content was 78 per cent, the number of red blood cells 4,350,000 and that of white blood cells 11,800. The results of the differential cell count were as follows: polymorphonuclears, 54 per cent; lymphocytes, 34 per cent; mononuclears, 10 per cent, and eosinophils, 2 per cent. The urinalysis gave negative results. A Wassermann test of the blood made by a private physician a year ago was reported to have given a 4 plus reaction. A Wassermann test made in the hospital on June 16 was negative. A biopsy made on June 20 showed granuloma. The section is shown. A Frei test on the right thigh made on November 18 appeared positive, but the antigen used in that test gave similar results in two other patients definitely free from lymphogranuloma. A test on the left arm with well proved antigen was negative. The family physician gave bismarsen, but this was without effect. Antisyphilitic treatment consisting of administration of neoarsphenamine was started promptly on admission, and at the same time the arsenical was sprayed in solution on the raw surface. Later, boric acid dressings were used. The lesion regressed for a time, but recently it has begun to extend once more in spite of treatment. Iodides have been administered recently, but without effect.

DISCUSSION

DR. FRANK C. KNOWLES: Recently my co-workers and I have observed a number of cases of tertiary lesions of the skin following traumatism. This case at first seemed to come under that heading. A lump on the arm was treated with roentgen radiation, after which it ulcerated and the ulceration started to spread. When the patient was at home the Wassermann reaction was said to be 4 plus, but a positive reaction has never been obtained here. The lesion responded partially to the antisyphilitic therapy; then the patient stopped treatment, and the ulcer relapsed and spread. It has not, however, responded as one would expect a lesion of that type to respond.

DR. HERMAN BEERMAN: I suggest the possibility of this condition's being factitious.

DR. C. GUY LANE, Boston (by invitation): I think it is a symbiotic ulcer of the kind which my co-workers and I have seen at the Massachusetts General Hospital in the last few years. We have seen these extensive ulcerations, some of which show undermining of the periphery, gradually extending, and from material from these we have made cultures of staphylococci and streptococci. Material from either of the cultures injected into animals produced a definite punched-out ulceration at the site of the injection. Some of these lesions have responded well to treatment with zinc peroxide; others have been completely excised or thoroughly curetted.

DR. FRED D. WEIDMAN: If such a lesion was present on the anterior surface of the abdominal wall I should have thought immediately of actinomycosis. The undermining might also make one think of an amebic infestation. The patient, however, does not have diarrhea. In any event, I think that studies of the micro-organisms should be made.

DR. ROBERT L. GILMAN: I do not know whether or not the present condition was caused by roentgen radiation. I do not know the circumstances of the previous irradiation, but the lesion is clean looking and reminds me of a third degree burn. It may be well to consider that possibility and try skin grafts. That is probably the only thing that will bring about recovery.

DR. FRANK C. KNOWLES: The radiation was applied only over a small area as compared with the present ulceration. The involvement has spread constantly since the lump broke down.

DR. REUBEN FRIEDMAN: The thought of a factitious lesion presented itself to me. I questioned the patient as to whether there was any domestic difficulty. She confessed that she was not getting along with her husband and about five years ago had left him for a year. On the other hand, the lesion had been about the size of an egg before it broke down, and according to the patient's statement it first broke down when the physician whom she consulted incised it. On the basis of that history I am inclined to exclude the diagnosis of factitious dermatitis.

Larva Migrans. Presented by DR. FRANK C. KNOWLES.

A. W., a girl aged 19, presented on first examination numerous linear red areas on the back, each of which was from 2 to 3 cm. long and had a markedly wavy outline. Itching was most intense at the termination of these lines, which were scattered indiscriminately over the back. Approximately one hundred active ends were noted. On Aug. 8, 1936, the patient had been at the seashore and had lain for some time with her back against a bank of wet sand. On the same night she noticed an itching rash on the back and a slight elevation of the skin on the itchy areas. A companion on the beach was unaffected. Freezing of the skin with ethyl chloride proved less satisfactory than application of solid carbon dioxide. The latter was used with good results, eight or ten of the parasites being destroyed at each application.

DISCUSSION

DR. EDWARD F. CORSON: It is unusual for this condition to occur so extensively at this latitude. In Florida infestation with larva migrans is sometimes more extensive than that exhibited by this patient, but ordinarily around here only two or three parasites infest the feet or hands. This girl acquired the parasites from wet sand banked up from under the boardwalk at Wildwood. The sand had not dried out well, and presumably cats and dogs had made use of it. The unusual feature is that a young man who had done approximately the same thing for a back rest and had lain beside the patient did not become infested.

Pustular Psoriasis. Presented by DR. ALLEN D. KING, Wilmington, Del.

C. P., a man aged 26, presents an extensive dull red vesicopustular and squamous dermatitis affecting both palms, several of the finger-tips and large areas on the sides and soles of both feet. The inflammatory reaction is of low grade, and the pustules and vesicles are out of proportion to the inflammation. The pustules are scattered at random over the involved areas, apparently in the epidermis, and when ruptured leave small gaping pits in the skin. There is an accompanying coarse, sheetlike desquamation. The clefts between the toes are not involved. There are no changes in the nails except on one finger at the site of a recent patch of dermatitis, where the nail has become brittle and distorted. No lesions can be found on the trunk or on the elbows or knees. There is a moderate oily scale on the scalp, and one small cicatricial patch of alopecia which is noninflammatory at present is noted over the occiput. The attack began in July 1936, the two hands becoming involved simultaneously, and shortly after the eruption appeared on the feet. In spite of therapy, the lesions slowly progressed by peripheral extension, and no central involution took place. There has been little pain or itching, except for the discomfort of the fissuring. The patient had a somewhat similar attack two years ago, which apparently responded to the local application of a preparation of pine oil. Multiple verrucae were removed from the hands several years ago by cautery. There have been no other dermatoses and the patient's general health is good. Repeated examination of potassium hydroxide preparations of skin tabs failed to show mycelial strands. The Wassermann and the Kahn reaction of the blood were negative. An intradermal test with trichophytin was positive.

Treatment has consisted of wet dressings of potassium permanganate and 6 per cent salicylic acid and of application of 10 per cent ammoniated mercury ointment. A 0.25 per cent concentration of anthralin (dihydroxyanthranol) was also used, and four intradermal injections of a 1:50 dilution of trichophytin were

given each week. Five fractional doses each consisting of one fourth of a unit skin dose (63 roentgens) of unfiltered radiation were administered to involved regions at weekly intervals.

DISCUSSION

DR. FRANK C. KNOWLES: The eruption looks to me like a fungous disease. At present there seem to be few pustular lesions. In the cases of pustular psoriasis which I have observed there usually was a considerable amount of crust formation in addition to the small pustules. I suggest the diagnosis of fungous infection.

DR. J. M. SCHILDKRAUT, Trenton, N. J.: The patient told me that he does not have many pustules now but that he has had many. Andrews reported cases of pustular psoriasis in which recovery followed the removal of foci of infection, especially of the tonsils.

DR. C. GUY LANE, Boston (by invitation): This patient's condition impresses me as fitting more into the group described by Barber than anything I have seen in some time. I observed some of Barber's cases when I attended the international congress in London in 1930; at that time he was trying to make two diagnoses, of psoriasis and dermatophytosis. The fairly sharp outline in this case, the fact that the lesions started on the sides of the toes, the dull red color, the thickening, which is somewhat more pronounced than is usual in cases of fungous infection, and the appearance of the hands particularly made me feel much more confident of the diagnosis of pustular psoriasis in this case than I have felt in many other instances. The patient also states that he had one previous attack of comparatively short duration, but of course that may have been a fungous infection. Barber spoke of the efficacy of application of juniper tar in ointment in combination with dietary restrictions.

DR. MARTIN VAN STUDDIFORD, New Orleans (by invitation): I agree with Dr. Lane. There may be a focus of infection stimulating this condition.

DR. FRED D. WEIDMAN: I think it is difficult to make a diagnosis tonight because this lesion, as the patient states, is not characteristic. He says that there have been definite pustules, and there is a sharp circumscription of this lesion that reminds me much of the cases of pustular psoriasis which MacKee has reported. MacKee holds emphatically that there is such an entity as pustular psoriasis. Andrews, on the other hand, stated two years ago that there is no pustular psoriasis.

DR. FRANK C. KNOWLES: It seems to me that the term pustular psoriasis is a troublesome one. Dermatologists who teach undergraduates stress the fact that psoriasis is always a dry disease having certain characteristics, including the fact that the palms and the soles are practically never involved. Then one turns to a nomenclature in which there is listed a pustular form of psoriasis which must be moist and occurs on the palms and soles, contrary to all that has been taught. What can one tell one's students? I think it is unfortunate that there is not another name that can be used in place of the term pustular psoriasis.

DR. VAUGHN C. GARNER: I have recently observed an enlightening case at the University Hospital, i. e., that of a young man with the typical picture of pustular psoriasis including the typical sharply circumscribed psoriatic lesion of the glans penis. That is the only case I have observed in which there was that corroborative evidence of associated psoriasis on the body. I suggest the use of Castellani's carbolfuchsin paint, which in two cases has definitely cleared up the eruption.

DR. ALLEN D. KING, Wilmington, Del.: There were many pustules until the past two weeks. About four or five months of treatment of one kind or another brought no relief, and in more or less desperation I talked over with the patient the possibility of his following the protein-free diet of Schamberg. Such a diet was given him. He followed it strictly for one week and then was given 40 Gm. of protein for the second week or ten days of the dietary treatment. There was a decided improvement in that time. There are no demonstrable lesions of psoriasis elsewhere on the body, and apparently there is no history of that disease.

Juvenile Form of Dementia Paralytica. Presented by Dr. Joseph V. Klauder.

A. A., a girl aged 12 years, was admitted to the Clinic of the Wills Hospital in July 1935 with a diagnosis of superficial punctate keratitis of the left eye. There are no stigmas of congenital syphilis. The pupils are irregular and unequal; they do not react to light but react in accommodation; all the tendon reflexes are absent; the station and gait are normal. Except for these observations the physical examination gave essentially negative results. The Wassermann reaction of the blood was 4 plus. Examination of the spinal fluid showed 9 lymphocytes, a strongly positive globulin reaction for a colloidal gold curve of 5555310000 and a strongly positive reaction to the Wassermann and to the Meinicke test, the result of each being 444. Subjectively, the patient reveals dysarthria, memory defect, change in disposition and poor judgment. There is no disturbance in gait. The father had neurosyphilis but not dementia paralytica; the Wassermann reaction of the mother's blood was 4 plus. When the patient was 6 years old she fell from a second story window and was unconscious for ten minutes but received no medical treatment.

DISCUSSION

Dr. Joseph V. Klauder: I think it is important that neurosyphilis be kept in mind when one examines children with congenital syphilis. The mother stated that the child was nervous and irritable, which led me to examine the spinal fluid. Of course, the abnormal pupils showed evidence of neurosyphilis.

Interstitial Keratitis with Neurosyphilis. Presented by Dr. Joseph V. Klauder.

R. H., a boy aged 11 years, has had active interstitial keratitis which is inactive at present. His pupils are unequal and irregular. The right pupil is fixed to light but reacts in accommodation. The left pupil reacts sluggishly to light but reacts in accommodation. The biceps and triceps reflexes are depressed. The patellar reflexes are hyperactive; the achilles tendon reflex is normal. He has no other objective or subjective symptoms of neurosyphilis. The spinal fluid is normal. The Wassermann reaction of the patient's blood as well as that of the mother's blood was positive. There are prominent frontal bosses, the facies of congenital syphilis, assymetry of the eyebrows and Fournier's tibia, more pronounced on the right. The patient had Clutton's joints, but the fluid has now disappeared. The pupillary findings suggest syphilis of the central nervous system in an inactive and asymptomatic stage at present. This is the second patient among the large number of patients with interstitial keratitis seen at the clinic of the Wills Hospital who showed evidence of neurosyphilis.

DISCUSSION

Dr. Joseph V. Klauder: My co-workers and I examined one hundred patients with interstitial keratitis for serologic and clinical evidence of neurosyphilis. One patient without objective or subjective symptoms of neurosyphilis had slight changes in the spinal fluid. His case and the one now presented make the incidence in our series 2 per cent. It is to be noted that in the boy now presented the diagnosis of neurosyphilis is made solely on the basis of pupillary abnormalities and the absence of some other explanation for such abnormalities. At one time, presumably, the nervous system was involved, the process becoming spontaneously inactive, or "burned out," as the older writers expressed it, especially in referring to so-called "burned-out" tabes. This state is not uncommon in late stages of acquired untreated syphilis. The pupillary abnormalities are the sole clinical evidence of neurosyphilis, the spinal fluid being normal. We have never observed active symptomatic neurosyphilis in patients with interstitial keratitis. As a matter of fact, if one excludes the stigmas of congenital syphilis of a fixed or permanent character, Clutton's joints are certainly the most frequent evidence of active syphilis which we have found in our series of patients with interstitial keratitis. Perhaps the explanation is an immunologic one. I refer in this regard

to the work of Brown and Pearce. From their studies of syphilis in rabbits it appears that the nature of the tissue reaction is a factor in determining ocular localization (Klauder, Joseph V.: Ocular Syphilis: II. Factors Influencing the Localization of Syphilis in the Eye, *Arch. Ophth.* **7**:268-279 [Feb.] 1932).

Lupus Vulgaris with Epithelioma. Presented by DR. JOHN B. LUDY.

F. G., a woman aged 33, presents widespread involvement of the cheeks and neck with patches of scarring and numerous embedded nodules of typical formation. Pressure with the diascope shows an apple jelly color. There is a linear seamy scar on the right cheek with a button-like nodule at its inner end. The condition began when she was 5 years of age, as a lumpy eruption under the chin, which increased and gradually spread onto the neck and cheeks. A sore appeared on the right cheek two years ago. A year later treatment was started, and electrocoagulation and radium were used with favorable results. Keloids developed at the sites treated with radium. Tuberculin tests were positive ten years ago. Examination of the blood showed 89 per cent hemoglobin, 4,800,000 red cells and 9,000 white cells. The differential count showed 73 per cent polymorphonuclears and 27 per cent lymphocytes. Tubercle bacilli were observed in sections of cutaneous tissue from an area the size of a dime which was removed from the face. Histologic examination showed giant cells, tubercle bacilli in situ, lymphocytes, cellular débris and fibrous tissue.

Treatment has consisted of electrocoagulation and radium.

DISCUSSION

DR. FRANK C. KNOWLES: This brings out a rather interesting point. Is it not extremely rare for lupus vulgaris to break down into epithelioma unless roentgen treatment has been given to the involved area? I think it would be rather informative if statistics could be gathered on that subject, because in cases I have observed in which malignant changes have developed almost invariably rather extensive roentgen therapy had been given to the areas showing lupus vulgaris.

DR. FRED D. WEIDMAN: A number of years ago Dr. Mary McIntyre reviewed the literature on this subject and found few authentic cases in which the condition had been proved to be carcinoma. In the cases in which illustrations were supplied the histologic picture might just as well have been a pseudo-epitheliomatous hyperplasia as a carcinomatous process. I think one should be careful in making a diagnosis of cancer in cases of lupus. It is a common thing for lupus lesions to undergo ulceration, and it is common for pseudo-epitheliomatous lesions to appear at the margins of many indolent ulcers of long standing. I think one should be careful not to jump too hastily to the conclusion that the condition is necessarily cancer. Other criteria ought to be considered, namely, the rapidity with which the lesion progresses; the physical character of the lesion and the presence or absence of a pearly border. All these factors, if they can be identified, and the results of histologic studies must be considered with the utmost care.

DR. C. GUY LANE, Boston (by invitation): I have been rather surprised in the three or four cases of lupus vulgaris with malignant change which I have observed to note how well the lesions have healed. I had the idea that they presented serious complications, and while in these cases results may have been unusually good, it has surprised me to see how quickly the lesions have closed and how well the scar looks after the excision or the removal by electrocoagulation of areas of malignant degeneration.

Disseminated Lupus Erythematosus with Alopecia Areata. Presented by DR. JOHN B. LUDY.

T. J. D., a man aged 46, when seen in September 1936 showed well marked lupus erythematosus on the cheeks, neck, ears, upper portion of the back, forearms and dorsa of the hands and fingers. He stated that in August 1934 the face, neck and ears had broken out with reddish patches. These cleared somewhat as

a result of local treatment, and a month later the hair started to fall out. For nine months his scalp was treated at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. The lights used for that purpose made the neighboring areas of exposed skin reddened and itchy. The hair started to come out in spots, and the face started to break out again in the summer of 1936. He returned to the Skin and Cancer Unit, where he received a preparation of gold intravenously. The condition of the hair was ignored during that period. The patient had some nasal trouble on the right side. He coughed much but was never told that he had tuberculosis. Examination showed no evidence of pulmonary disease. Roentgen examination revealed several fibrous strands in the apex of the right lung, apparently representing an old tuberculous lesion; otherwise the lungs were normal except for some increase in the hilus and trunk shadows. On Sept. 15, 1936, examination of the blood showed 80 per cent hemoglobin, 4,170,000 red cells and 6,800 white cells. The differential count showed 64 per cent polymorphonuclears, 23 per cent lymphocytes, 9 per cent monocytes, 3 per cent transitionals and 1 per cent eosinophils. The platelets numbered 135,000. On November 2 the blood count showed 5,180,000 red cells and 4,160 white cells. The results of the differential cell count were as follows: polymorphonuclears, 59 per cent; lymphocytes, 30 per cent; monocytes, 4 per cent; transitionals, 6 per cent, and eosinophils, 1 per cent.

Treatment has consisted of five intravenous injections of a preparation containing colloidal gold, and marked improvement has resulted.

DISCUSSION

DR. EDWARD F. CORSON: I did not see the patient before, but as Dr. Ludy explained to me the alopecia areata was the original process, and the patient thought that the ultraviolet radiation used on his head started the lupus erythematosus because he was insufficiently protected from the rays. The lupus erythematosus began around the margin of the scalp, and after it appeared the two processes went on jointly.

DR. JOSEPH V. KLAUDER: I think that the alopecia is sufficiently generalized to warrant the use of hydrolyzed wool. I think it is not curative, but it has some value. It is in order to give sulfur when there is loss of hair. For growth of hair sulfur is needed, of course.

Idiopathic Multiple Hemorrhagic Sarcoma of Kaposi. Presented by DR. JOSEPH M. SCHILDKRAUT, Trenton, N. J.

H. V., a man aged 59, presents a group of bluish nodules the size of a pea and larger about the left knee. Behind the left knee there are nodules and granulomatous lesions; there are also scattered nodules on the upper and lower extremities. There is a macerated nodule on the side of the fourth toe of the left foot. There are also infiltrated nodules in the scrotal sacs and on the shaft of the penis. There are infiltrated bluish nodules in both ears and remnants of nodules on the nose; these have improved as a result of roentgen therapy. A granulomatous nodule was removed from the posterior surface of the right thigh by electrocoagulation. A similar lesion removed from behind the left knee recurred. Granulomatous lesions were caused by picking and scratching the nodules; secondary infection developed, giving the appearance of pyogenic granuloma. The condition is of about seven years' duration.

The Wassermann reaction of the blood was negative. Treatment has consisted of roentgen radiation to the nose, the back of the right hand and the back of the left knee, and improvement has resulted. Five drops of potassium arsenite has been given three times a day.

DISCUSSION

DR. FRANK C. KNOWLES: I think that clinically the eruption is rather characteristic; but I believe a biopsy should be made to prove the diagnosis.

DR. FRED D. WEIDMAN: I think that the condition is a rather unusual type of Kaposi's sarcoma, except as representative of the early stage. By the time

the disease has lasted as long as this, the surface usually becomes verrucous and hyperkeratotic and the lesions are usually more extensive. This man comes from Russian Poland, where Kaposi's sarcoma is prevalent and I think that that diagnosis will prove to be correct.

Epidermolysis Bullosa; Cutis Hyperelastica. Presented by DR. THOMAS BUTTERWORTH, Reading, Pa.

R. A., a man aged 36, presents a number of depressed atrophic depigmented scars over his forehead and over the anterior aspects of his legs. Below one knee is a bluish red soft swelling which gives the impression of being a deep hemorrhagic bulla. Large flaps of skin can be picked up between the fingers and extended from the underlying tissues. When those folds are released the skin retracts to its former position. The scars on the patient's shins and forehead date back as far as he can remember and are said to have been preceded by a black and blue mark. The patient is uncertain as to whether his mother had unusually distensible skin, but he states definitely that she had scars similar to his own on her forehead.

DISCUSSION

DR. THOMAS BUTTERWORTH, Reading, Pa.: I believe this condition is somewhat more common than one would think. About a year ago I presented another patient with a similar condition at a meeting of another society, and although both patients come from practically the same part of the county, I could not trace any relationship between them.

NEW YORK ACADEMY OF MEDICINE, SECTION OF DERMATOLOGY AND SYPHILIS

J. GARDNER HOPKINS, M.D., *Chairman*

Oct. 6, 1936

DAVID BLOOM, M.D., *Secretary*

Ecthymoid Pustular Syphilid. Presented by DR. HOWARD FOX.

E. D., a woman aged 31, is presented from the dermatologic wards of the Bellevue Hospital.

The eruption first appeared about five weeks ago. It is generalized, sparse, roughly symmetrical and most profuse on the trunk, but there are scattered lesions on the face and extremities. These vary from 1 to 6 cm. in diameter and consist of a central crust the size of a large coin and an areola which is erythematosquamous, is the color of lean ham and shows no evidence of scratching. There is also a fading macular eruption. The Wassermann reaction was strongly positive.

DISCUSSION

DR. ISADORE ROSEN: I saw this patient two or three weeks ago, before any treatment was instituted. At that time the eruption was much more profuse and active. She received at our clinic two intramuscular injections of a bismuth preparation, which resulted in marked improvement in the cutaneous manifestations. She is probably suffering from an infection of at least six or eight months' duration, and I believe the unusual severity of the cutaneous symptoms is due to some underlying lowered resistance, which can be accounted for in her case by the excessive use of alcohol.

DR. HOWARD FOX: Aside from the fact that cases of extensive ecthymoid pustular syphilids are uncommon, there are two features of special interest in

this case: (1) an areola around each pustule, consisting of papules the color of lean ham and diffuse scaling, and (2) a fading macular eruption which does not often appear coincidentally with the pustular eruption.

Ulcerating Gummous Syphilid. Presented by Dr. Howard Fox.

J. R., a man aged 45, is presented from the dermatologic wards of the Bellevue Hospital. The patient shows extensive ulcerations in the left inguinal region and a nodular eruption on the back. The ulcerated areas appeared ten months ago and are deep, undermined and sharply delimited. They involve the left inguinal region and the upper inner aspect of the left thigh. The eruption on the back is widespread and moderately profuse and consists of dull-colored nodules the size of a large pea, which cause no itching or tenderness. There is a tendency for the lesions to be grouped in semicircles. There are also a few inflammatory lesions which are somewhat tender and suggest a complicating bromoderma. The Wassermann reaction was strongly positive, and the tests with Frei antigen and Dmelcos antigen (a stabilized suspension of Ducrey bacilli) gave negative results. The patient has begun to show improvement as a result of antisyphilitic treatment.

DISCUSSION

Dr. E. William Abramowitz: Although I could not get a history of medication, I have the impression that the papular lesions have appeared recently, and I think that they are probably an iododerma or a bromoderma. I wonder what local applications have been administered to the ulcerated area. The patient has been applying a red solution. Is this by any chance biniodide of mercury?

Dr. Edward R. Maloney: No.

Dr. Howard Fox: There is no doubt about the syphilitic nature of the ulcers in the groin, which are rapidly improving as a result of antisyphilitic treatment. A point of controversy in the clinic concerned the eruption on the back, opinions differing as to whether this was a nodular syphilid or an iododerma. Many of the lesions were previously elevated "fleshy lumps" and have flattened since antisyphilitic treatment was given. The tendency to grouping in circles or parts of circles pointed to a diagnosis of nodular syphilid, although there were a few lesions that looked inflammatory and suggested an eruption due to iodides or bromides. The patient, however, stated that he had not taken either of these drugs.

Leprosy. Presented by Dr. G. F. Machacek.

J. P., a Spanish man aged 52, is presented from the Vanderbilt Clinic. He has a generalized eruption of one year's duration. The patient was presented before the Bronx Dermatological Society in April 1936.

Scattered over the body are reddish brown soft elevated lesions which cause no subjective symptoms. They are sensitive to both pain and temperature. The skin of the face is thickened but paler than the eruption on the abdomen and back. As a result of treatment with ethyl chaulmoograte the lesions have faded considerably. The ulnar nerves are palpable, particularly on the left side. The left ankle is swollen. A trophic plantar ulcer appeared under a callus, but this has healed. The heels and the lateral and posterior aspects of both feet and of the lower portions of the legs are anesthetic. The palms appear atrophic. In July 1936 a new eruption appeared on the extremities. Small nodular lesions were noted which were most conspicuous about the elbows. There were ringed patterns of small papules and a generalized scaliness.

Sections examined early in the study of the case had a sarcoid structure or were only slightly infiltrated and showed the changes usually seen in maculoanesthetic leprosy. A recent microscopic examination showed a slight infiltration of large mononuclear cells in the upper portion of the corium and about the nerve

bundles. All examinations disclosed leprosy organisms. The last showed only an occasional leprosy bacillus in the nerves.

The patient is presented with the diagnosis of leprosy with nodular, small papular and neurocutaneous macular lesions, some of which are anesthetic.

DISCUSSION

DR. A. W. GRACE: I wish to ask Dr. Machacek what treatment this patient is receiving. It is known that in treating patients with leprosy with chaulmoogra oil one runs the risk of causing dissemination of the infection. It might be well to watch the rate of sedimentation of the erythrocytes to see that it does not run too high. If it rises too high above the normal, there is danger of a reaction. The only accurate way to treat the patients is to watch the sedimentation rate while chaulmoogra oil is being administered either alone or with potassium iodide.

DR. HOWARD FOX: I wish to make an appeal for the use of the nomenclature of leprosy adopted at an international convention in Manila, P. I. The new terms should be cutaneous and neural leprosy in place of nodular and anesthetic (or maculo-anesthetic). The symbols C I, C II, C III, and N I, N II and N III are being used to designate the two types according to the degrees of severity.

DR. SIGMUND POLLITZER: I read on the chart the statement that all the sections showed bacilli; this surprised me much, because bacilli are rarely, if ever, seen in the neural type of leprosy.

DR. G. F. MACHACEK: I have talked to several leprologists, and I must say that my limited experience does not agree with what they say. I have examined many sections from patients whose condition was clinically of the neural type and observed some surprising things. Sometimes the infiltration was really that of cutaneous leprosy. Of five or six cases of neural leprosy, in only one was I unable to observe at least a few bacilli. In some I observed many organisms. I think that the technic plays a part in these results. For instance, in this case, the first sections did not show any organisms, although I knew that bacilli were present, and I had to stain more sections to "bring them out." There were only two or three organisms here and there in and around nerves. There was no tuberculoid structure in the sense in which it has been described, but there was a sarcoid structure.

I think Dr. Grace is right. This is the second case I have observed in which sudden dissemination of small lesions appeared. In the first case there were pustular lesions which appeared to be due to a dermatitis medicamentosa. One pustular lesion was excised and found to be literally filled with organisms, and the infiltration was quite different from what one ordinarily sees. It was an acute infiltration with many polymorphonuclear leukocytes. I am sorry I did not get a biopsy specimen from one of these small disseminated lesions in the more or less eczematized areas, because I agree with Dr. Grace that the treatment has probably caused a crisis.

A Case for Diagnosis (Porokeratosis of Mibelli?). Presented by DR. PAUL GROSS and DR. L. P. BARKER.

M. St. J., a girl aged 14, born in the United States, is presented from the Vanderbilt Clinic. The lesions on the arms, legs and axillae developed when the patient was a child and have spread gradually. This distribution suggests metameric development. There are three distinct types of lesions which appear in different locations: (1) The smallest ones are about the size of a lentil and distinctly raised; they have a slightly depressed center giving a ringlike appearance; they are the color of normal skin and slightly pinkish, and their surface appears smooth. These lesions are most numerous on the inner aspects of the ankles and in the posterior axillary folds. (2) Hyperkeratotic lesions, some of which are really wartlike, involve especially the backs of the heels and the plantar surfaces of the feet. On the posterior surface of one heel is a hyperkeratotic lesion surrounded by a raised ringlike border. (3) Larger patches and bands consisting

mostly of atrophic areas, some of which are interrupted by rings of normal skin, occur especially on the thighs and legs. On the periphery of these lesions are keratotic plugs. There is one lesion, about the size of the large atrophic lesions, on the inner surface of the left thigh, which shows within the atrophic area numerous pinhead-sized pinkish papules, each of which has a keratotic spine in the center. In the left axilla are ringlike and atrophic lesions, but in addition there are numerous larger nodules, ranging in size up to that of a pea, consisting of grouped pinkish papules. Some of the atrophic lesions seem to show telangiectases.

The coagulation time was four minutes. Chemical investigation of the blood showed urea, 21 mg.; urea nitrogen, 10 mg.; uric acid, 2.2 mg.; sugar, 91 mg., and cholesterol, 204 mg. per hundred cubic centimeters. The blood count showed 5,000,000 red cells, 79 per cent hemoglobin and 8,700 white cells. The differential count showed 48 per cent polymorphonuclear leukocytes, 51 per cent small lymphocytes and 1 per cent eosinophils.

Histologic examination of sections of skin, made by Dr. G. F. Machacek, showed numerous changes. Some elongation of the rete pegs with acanthosis was noted. The surface was thrown up in folds. Marked hyperkeratosis and parakeratosis of the indentations appeared. This was marked about the outlets of the coil glands. These changes suggested to some extent those seen in Darier's disease, while other parts of the epidermis showed a distinct atrophy with loss of rete pegs. Here there was also a marked hyperkeratosis, and the appearance somewhat suggested lupus erythematosus. A rather intense chronic inflammatory reaction was present in the corium. The capillary walls showed thickening, and there was evidence of edema deep in the corium, where there were numerous mast cells and a kind of local capillary angiomatosis. A diagnosis was difficult to make. Many distinct possibilities occurred, among them being porokeratosis of Mibelli.

DISCUSSION

DR. SIGMUND POLLITZER: I saw this patient only cursorily and not in a good light. The raised border characteristic of porokeratosis is present. I think this is a reasonable diagnosis.

DR. PAUL GROSS: The following features seem to be particularly helpful in the clinical diagnosis: The lesion on the right ankle shows a depressed center and a typically raised wall, with horny lamellae running along the inner side of the circular wall. There are some earlier lesions consisting of small papules with keratotic plugs, and some slightly larger ones already showing the raised border. There are advanced lesions of large size with definite atrophy and keratotic plugs within the atrophic area. Other atrophic lesions, particularly one on the dorsum of the left foot, show, besides the atrophic centers and the hyperkeratotic plugs, a typical raised border which is almost the color of the surrounding skin and is therefore rather difficult to see or bring out on a photograph. As the lesions extend to the plantar surfaces of the feet and to the heels, they assume the appearance of plantar warts, but even some of these lesions show, on close inspection, the typical wall-like border. These clinical features, together with the histologic picture, the systematized distribution and the family history, seem to be sufficiently characteristic of porokeratosis of Mibelli.

DR. G. F. MACHACEK: There was nothing in the sections which in any way vitiates the diagnosis of porokeratosis of Mibelli. There was a localized focus of hyperkeratosis with keratotic plugs and parakeratosis, dipping down into the epidermis. Behind this were areas of atrophy. There was also some slight resemblance (such as thickening of the walls of blood vessels) to Majocchi's disease. I thought at first that the case was one of Majocchi's disease because the skin was so livid, but the condition has changed considerably, and there is no question that it fits in now with the picture of porokeratosis of Mibelli. I think many other conditions may sometimes simulate porokeratosis. I know of one case in which a very superficial sarcoid simulated porokeratosis of Mibelli. I do not know what porokeratosis of Mibelli is, but in some cases several members of a family suffer from it. Italians apparently suffer from it more than persons

of other races. This may indicate that the disease is due to factors such as diet and avitaminosis. I believe the diagnosis of porokeratosis of Mibelli is correct.

Idiopathic Atrophy of the Skin. Presented by DR. ISADORE ROSEN.

M. D., a woman aged 36, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital with a condition of eight weeks' duration. Examination shows, on the inner surface of both thighs, in the upper left region of the chest and over the left breast, a marked thinning and wrinkling of the skin. There is marked sagging of the affected skin due to the atrophy. The areas on the chest and the margins of the extensive areas of the thighs show moderate thickening, although the skin over them shows definite wrinkling and atrophy. There is no poikiloderma.

Urinalysis and a complete blood count gave normal results. The Wassermann and Kahn reactions were negative. The basal metabolic rate was —5 per cent. Chemical examination of the blood showed urea nitrogen, 10.5 mg.; uric acid, 1.9 mg.; sugar, 80 mg.; chlorides, 460 mg., and calcium as element calcium, 10.4 mg. per hundred cubic centimeters.

Histologic examination of a section taken from the skin over the left breast showed the edematous stage of atrophy. Parenchymatous edema was evident throughout the cutis. Some of the lymphatics appeared dilated. Around the vessels some proliferation of spindle cells was noted. There was little evidence of adnexa. The elastic tissue was broken up and was in part rarefied. The epidermis was thinned and partly flattened.

DISCUSSION

DR. ISADORE ROSEN: The lesions on the chest give the impression of scleroderma, but I believe that they are the same as those on other involved areas and that they belong to the group which is known as idiopathic atrophy of the skin.

A Case for Diagnosis (Lupus Vulgaris?). Presented by DR. LAIRD S. VAN DYCK.

F. L., a woman aged 60, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, presents lesions on the ears of eighteen years' duration. On the left ear is a raised, circumscribed, verrucous, ulcerated lesion, 2 by 4 cm. Both ears show atrophy and scarring. Behind the right ear is a sharply outlined, erythematous and papular scaly patch extending about 1 inch (2.5 cm.) below the ear, with a slightly raised border. On the lateral aspect of the left leg, just above the ankle, is an erythematous vesicular scaling area, 12 cm. in diameter. The pupils of both eyes are contracted.

Hysterectomy was performed twelve years ago. The patient was seen at the Skin and Cancer Hospital in May 1925, at which time a diagnosis of lupus erythematosus was made clinically but was not confirmed by histologic examination. A biopsy specimen was taken at that time and reported to show chronic inflammatory tissue. Treatment in the past has consisted of roentgen therapy administered by a private physician, injections, application of lotions and ointments, administration of pyrogallol and a salt-free diet.

Examination of the eyes revealed chronic dacryocystitis. The Wassermann and Kahn reactions were negative. A section taken on Sept. 5, 1936, was reported as showing senile hyperkeratotic verruca with no evidence of malignant degeneration. The epidermis was irregularly acanthotic and the rete pegs were markedly lengthened and broadened in some parts of the section. The granular layer was thickened, and the epidermis was covered by a moderate, closely laminated horny layer. In the upper portion of the cutis there was a moderate cellular infiltrate composed of numerous small round cells, plasma cells and some wandering connective tissue cells. The vessels of the upper portion of the cutis were moderately dilated, and there was some interstitial edema.

DISCUSSION

DR. LOUIS TULIPAN: I believe that lupus vulgaris can be ruled out in this case, because of the patient's age and the fact that there are no signs of nodules. Ver-

rucous lesions of the type seen here are unusual in lupus erythematosus and more common on senile skin, where they sometimes undergo epitheliomatous changes. The border of this lesion is well defined and appears rolled. I favor the diagnosis of seborrheic keratosis undergoing epitheliomatous change.

DR. G. F. MACHACEK: I think that lupus vulgaris and epithelioma must be ruled out by histologic examination. I think Dr. Hopkins has observed a case in which there was a similar problem—the question of verrucous lupus erythematosus was raised, and the eruption was found to be due to avitaminosis.

DR. HOWARD FOX: I think lupus vulgaris can be excluded because of the age of the patient, the absence of nodules and the fact that none of the three histologic examinations showed any evidence of tuberculoid structure. The histologic examination would also help to exclude epithelioma. In my opinion the entire process is lupus erythematosus, which presents at one site well marked verrucous elevations. Verrucous changes certainly occur in lupus erythematosus, although they are uncommon.

Sarcoid and Lupus Vulgaris of the Face. Presented by DR. ISADORE ROSEN.

C. P., a woman aged 35, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, was born in Istanbul, Turkey, lived in Aleppo, Syria, from 1914 to 1917 and came to the United States in 1922. From 1917 to 1918 she had a boil on the bridge of the nose which was diagnosed as an Aleppo boil in Istanbul and for which she received roentgen therapy at that time.

On the bridge of the nose there is a depigmented, atrophic area of skin the size of a 50 cent piece. On the right cheek are two areas the size of a large pea which show pinhead-sized typical nodules of lupus vulgaris. On the backs of the elbows and arms, on the shoulders and on the chest there are about a dozen dime-sized bluish red deep nodules attached to the skin.

The Wassermann and Kahn tests were negative. Urinalysis gave negative results. Histologic examination showed superficial and deep lupus vulgaris. Throughout the cutis, extending to the subcutis, there were masses of cellular infiltrate of various sizes. There were some edema and some dilatation of the vessels throughout the cutis. The epidermis showed little of note. The cellular infiltrates were mainly sharply circumscribed and consisted of conglomerations of epithelioid cells. In the deeper areas there were considerable numbers of small round cells around the tubercles.

DISCUSSION

DR. MARION B. SULZBERGER: The combination of lupus vulgaris and sarcoid has been described. Such cases are always interesting, particularly because of the light they shed on the common etiology of the two conditions and on the force of immunobiologic factors in determining the morphologic characteristics. Not only combinations of these different tuberculoderms but also transitions have been described, namely, sarcoid changing to lupus vulgaris and lupus vulgaris changing to sarcoid in the course of years. The transition has been demonstrated both clinically and histologically. (Schreiber, H.: Sarcoid of Boeck with Transition to Lupus Vulgaris, *Arch. f. Dermat. u. Syph.* **164**:365, 1931). Without having seen the sections, I think it would be difficult tonight to recognize these minute lesions on the cheeks as lupus vulgaris. The question as to whether they are lupus vulgaris or sarcoid rests on the histologic picture and on the bacteriologic and immunologic observations. It is sometimes difficult to distinguish histologically, because the diagnosis depends sometimes on whether one observes a lymphocytic wall or not. The best proof is experiments with guinea-pigs. If positive results from experiments with guinea-pigs or positive cultures are obtained, then the condition is in all probability lupus vulgaris. Another method of differentiating is the cutaneous reaction to tuberculin; hypersensitivity indicates lupus vulgaris; hyposensitivity, sarcoid. I think it would be interesting to make quantitative tuberculin tests.

DR. J. GARDNER HOPKINS: Would Dr. Sulzberger consider negative results from inoculation of guinea-pigs a proof?

DR. MARION B. SULZBERGER: Yes, I would consider a negative result of inoculation of guinea-pigs as ruling out lupus vulgaris, provided the experiment was properly performed; enough guinea-pigs (at least six or seven) were used, and their organs were examined for tuberculosis after they died.

Pityriasis Lichenoides et Varioliformis Acuta (Habermann). Presented by DR. HERMAN SHARLIT.

H. M., a girl aged 13, is presented for Dr. B. A. Newman from the Bellevue Hospital because of an eruption of three or four weeks' duration involving the trunk, the axillae and the neck. The eruption first appeared as macules, some of which were scaly and resembled pityriasis rosea. One week later many papular and fleshy lesions appeared, which resembled secondary syphilis. At present, many of the fleshy lesions are crusted. There is a generalized adenitis. The Wassermann test was negative.

DISCUSSION

DR. PAUL GROSS: The only diagnostic difficulty is the fact that there are few typical parapsoriatic lesions, although there are a few small macules with scaly scutula on the inner surfaces of the arms. The other lesions are characteristic of the varioliform variety of parapsoriasis.

DR. HERMAN SHARLIT: The lesions in this patient were always limited to the trunk and axillae. The eruption has gone through an evolution of manifestations, and the appearance tonight is different from that which was present several days ago. A week ago the eruption looked almost like pityriasis rosea, but not enough so to make any one satisfied that it was not something else. Within two or three days after it had presented that appearance papules, some large and some small, developed on the trunk. Tonight these papules are necrotizing and disappearing, and there are some vesicular lesions.

Pityriasis Rubra Pilaris. Presented by DR. JESSE A. TOLMACH.

J. W., a man aged 70, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, presents a generalized eruption of three months' duration. The patient is a farmer and states that recently he has been spraying his cows with an insecticide.

The upper and lower extremities show large sharply demarcated scaly erythematous areas. The face, neck and scalp are involved in this erythema and scaling. On the abdomen there are many tiny follicular, scaly papules. There is a marked keratoderma of the palms and soles.

Urinalysis gave negative results. Histologic examination of the skin of the abdomen showed the following picture: The epidermis was irregularly acanthotic. There was a dilated follicle, and there were some areas of parakeratosis. The superficial vessels were dilated, and around them and around the follicles there was a moderate round cell infiltrate. According to the pathologist, the histologic picture might fit in with the clinical diagnosis of pityriasis rubra pilaris.

DISCUSSION

DR. HOWARD FOX: Does Dr. Tolmach think that an insecticide had anything to do with the causation of this eruption?

DR. PAUL GROSS: I think the development of so extensive an eruption within three months, considering the advanced age of the patient, speaks against the diagnosis of pityriasis rubra pilaris, although the clinical picture favors this diagnosis very much. I suggest that the patient's diet be investigated and the response to intramuscular injections of liver extract observed. Furthermore, it would be interesting to find out whether the patient had been using oils or salves extensively before he was seen.

DR. PAUL E. BECHET: In my opinion Dr. Tolmach's patient presents the classic picture of Devergie's disease. All the pathognomonic symptoms of this interesting dermatosis are present. It is sometimes a relief to see a clearcut

example of a comparatively rare disease in a group of nondescript cutaneous eruptions regarding which any one's diagnosis might prove correct. Presentations of typical examples of well known but infrequently seen dermatoses are, as far as I am concerned, most welcome at meetings.

DR. FRED WISE: I think this eruption is typical in every respect. The lesion on the buttock interested me most. The sharp line of demarcation seen in pityriasis rubra pilaris is marked in this case. The only feature which I think is not quite correct in the history is the alleged duration of three months. I doubt if this is of only three months' duration. I think that the patient had the disease before contact with an irritant and that his attention was attracted to the preexisting trouble when a dermatitis caused by insect powder developed. The eruption is probably of a number of years' duration.

DR. G. F. MACHACEK: For about ten years I have been working in dermatology, and I have observed a number of cases of pityriasis rubra pilaris. My idea of this entity has never been clear and is not even now. I have observed a number of cases in which many, if not all, the earmarks of this disease were present, and some strange things have appeared in them. In some there has been a definite factor of hypersensitivity. In some the condition has turned out to be lymphoblastoma; in others, psoriasis. It is difficult to discuss a problem of this nature. Various etiologic factors produce this picture. I should like to hear more from some of the older members, whose experience is greater, about some of the typical features of the disease.

DR. HOWARD FOX: Although nothing is known about the etiology of this rare disease, the clinical diagnosis in a case of the well marked type is easy. In my opinion, the patient just presented has classic pityriasis rubra pilaris of Devergie. He shows all the characteristic signs except the plugs on the backs of the fingers, but, as some one has said, the extensive scaling covers up the plugs.

DR. E. WILLIAM ABRAMOWITZ: I also think this case is one of classic pityriasis rubra pilaris, in spite of the absence of the follicular plugs on the backs of the phalanges. I think some of the older members will be interested to hear about a boy whom I presented many years ago (ARCH. DERMAT. & SYPH. **6:** 100 [July] 1922). He had typical pityriasis rubra pilaris, and that eruption developed in less than three months. The patient had the eruption sporadically for several years. He received no treatment except application of local emollients. I saw him last year and found his skin and general condition to be perfectly normal.

DR. JESSE A. TOLMACH: This case is presented as one of fairly typical pityriasis rubra pilaris. The question of the insecticide bears a point of interest. In cases of diseases in which the etiology is unknown and there is a history of the use of a known cutaneous irritant like an insecticide, difficult problems in suits for compensation arise.

Generalized Dermatophytosis (Microsporon Felineum). Infection of the Mouth and Gastro-Intestinal Tract with Monilia Albicans. Presented by DR. BEATRICE M. KESTEN.

E. K., a woman aged 24, is presented for Dr. Onis G. Hazel of Oklahoma City from the Vanderbilt Clinic because of oral lesions of twenty years' duration. The patient was admitted to the Presbyterian Hospital on June 18, 1936. The familial and the previous history are irrelevant.

For as long as she can remember the patient has suffered from almost constant soreness of the mouth. This necessitated the omission of salty and acid foods from her diet for years. Eight years ago, when she was admitted to the State University Hospital, Oklahoma City, because of soreness of the mouth, several small reddish lesions were noted on the abdomen. The eruption soon became generalized. The patient has spent most of the past eight years in hospitals. She was studied intensively in 1934, and the observations were reported (*J. Oklahoma M. A.* **27:**395-397, 1934). The lesions improve and then recur.

When the patient was admitted to the Presbyterian Hospital in June 1936, the results of examination were as follows: The tongue was red, edematous and

furrowed and showed shallow grayish ulcerations at the edges. The pharynx was red and presented a few shallow aphthae. The gums were spongy and showed an advanced stage of pyorrhea. The scalp was oily; there were yellowish, adherent scales around all the hair follicles. The hair was dry, dark, bobbed and thin. The skin showed a generalized scaly yellow, erythematous eruption. On the arms, legs, face and neck the lesions were discrete; on the palms, soles and trunk they were confluent. The individual lesions were from 0.5 to 4 cm. in diameter, were macular or maculopapular and had yellow scaly centers and salmon-pink edges. When the scales were removed, either red areas the size of a pinpoint or conical depressions that bled easily remained. The corners of the mouth were cracked and scaly. The finger-nails had been removed and were replaced by honeycombed yellowish cornifications.

Mycologic studies gave the following results: Cultures from oral lesions and from the feces showed Monilia albicans. Cultures from numerous areas of skin showed Microsporon felineum. Cultures of tissue from the nails showed unidentified fungous and bacterial contamination. Cutaneous tests for monilias, microsporons and yeasts gave negative results. A series of roentgenograms showed no abnormality. A blood count and urinalysis gave negative results. The Wassermann reaction of the blood was negative. Gastric analysis showed no free hydrochloric acid and total acid 7; after administration of histamine, free acid measured 12 and total acid 29. Chemical examination of the blood, including examination for protein, sugar, carbon dioxide, chlorides, cholesterol and phosphatides, gave normal results. The basal metabolic rate was —13 per cent.

Therapy has included use of practically all the fungicides, oral administration of thymol, a diet high in vitamins, intramuscular and intravenous administration of liver extract, vegex, desiccated hog stomach and cod liver oil, ultraviolet and roentgen therapy, administration of autogenous and stock vaccines and of suspensions of monilias and microsporons, and fever therapy. In the production of hyperpyrexia both artificial methods and typhoid vaccine were used.

DISCUSSION

Dr. Onis G. Hazel, Oklahoma City (by invitation): I wish to thank Dr. Kesten and the section for the opportunity to say a few words about this interesting case. There are others here this evening who have seen this patient in the past ten years. She came to Drs. Lain and Lamb in Oklahoma City in 1927, as a little girl, complaining of a sore mouth and a generalized cutaneous eruption. It was felt then that her condition was a typical infection with M. albicans, associated with a generalized infection with M. felineum. Repeated laboratory examinations have confirmed the original observations. The patient has received extensive treatment including roentgen irradiation, fever therapy and administration of fungicides, autogenous vaccines, suspensions of monilias prepared by Dr. Lamb and extracts of M. felineum prepared by him according to the technic described in Dr. Fox's clinic a number of years ago. At the time she was given the first injection of the extract the skin was not so extensively involved. After several injections of this extract the entire skin became involved, and the condition was much worse. Fever therapy reduced the infiltration of the skin. The temperature was raised to 106 F. for six treatments, and the patient felt a little better. The possibility of avitaminosis was considered, as she came from a destitute family. She had an almost absolute achlorhydria. After a rest in the hospital for one and a half years, she was considerably improved, probably not owing to the therapy. She was in a better environmental condition, and the food she received was better. Last year I heard Dr. Rhodes of the Rockefeller Foundation talk about his success with liver extract in cases of anemia associated with sprue. I arranged for the patient's admission to the Rockefeller Hospital, and this spring Dr. Rhodes gave her intramuscular and intravenous injections of liver extract and of crystalline vitamin C. After three months he felt that the therapy was not effective, and she was then sent to the Presbyterian Hospital where she has been under the care of Dr. Kesten since then. The patient tells me she has gained considerable weight and is in better condition than at any time previously. I felt that this case was

interesting, as the patient had such an extensive involvement with M. felineum and as the condition had been resistant to the types of therapy usually employed in this sort of condition. I feel that there is something more than a fungous infection of the skin, namely, that there has been a breakdown in her general immunizing mechanism, due partly to avitaminosis and partly to poor environment and nonspecific factors.

DR. MARION B. SULZBERGER: I have had no experience with a combined infection with Monilia and M. felineum, but the entire clinical appearance in this case is strikingly similar to that which Dr. Hopkins described, I believe, under the title of moniliasis and moniliids and is also similar to the cases presented here with this diagnosis and with that of "dermo-epidermitis of Gougerot." There has been at the Montefiore Hospital for Chronic Diseases for the past six or seven years a girl with an almost identical infection of the mouth and of the gastro-intestinal tract and with similar cutaneous lesions. All therapeutic measures have been unsuccessful. They have included everything which has been mentioned in this case, such as administration of crystallized vitamin C and pituitary extract, a diet high in vitamins and desensitizing measures with fungus extracts (oidiomycin) in every combination which could be found. All have been to no avail. The fungi continue to be demonstrable in the mouth, in the gastro-intestinal tract and behind the ears. The condition at times diminishes, but it never disappears. I agree with what has been said, namely, that there are more factors in these cases than just a fungous infection. There is something radically wrong with the immunologic reaction of the patients, and this aberration of immunologic response might well be based, at least partially, on constitutional factors. I wish to call attention to the two cases in brothers previously presented by Dr. Sachs. The manifestations in all these cases look alike even as to the facies and the buck teeth. I should like to present the girl from the Montefiore Hospital for Chronic Diseases at a future meeting. On appearance alone one would think that the girl at the Montefiore Hospital for Chronic Diseases was the younger sister of Dr. Hazel's patient.

My co-workers and I discussed the case presented tonight in an editorial comment to the article by John H. Lamb and Onis G. Hazel (Year Book of Dermatology, Chicago, The Year Book Publishers, Inc., 1935, pp. 142-144). The patient at the Montefiore Hospital for Chronic Diseases whom I have mentioned was presented and her case was discussed at a meeting of the Bronx Dermatological Society (ARCH. DERMAT. & SYPH. **30**:741 [Nov.] 1934).

DR. JESSE A. TOLMACH: I should like to know over how long a period the oidiomycin tests were made and whether the results were consistently negative.

DR. HOWARD FOX: The two features of interest in this extraordinary case are the simultaneous presence of both a mold and a yeast infection and the great resistance to treatment which this patient has shown. I saw the patient five years ago in Oklahoma and am astonished that no appreciable change has taken place since then, in spite of extensive treatment.

DR. J. GARDNER HOPKINS: I think the point of great interest is the persistence of infection on the glabrous skin with an organism which is usually thought to be about the easiest thing in dermatologic practice to get rid of.

DR. ONIS G. HAZEL: Autogenous vaccines and suspensions and extract of organisms were given in 1933, and administration of extracts and nonspecific procedures were used in 1934, but no improvement followed. It was not possible to increase the dose of the microsporon extract sufficiently on account of the necrosis; so that treatment was discontinued without what I should consider a thorough trial. As Dr. Sulzberger says, these cases present multiple problems in immunology and represent a similar constitutional make-up.

Tinea Corporis. Presented by DR. GEORGE M. LEWIS and DR. R. MONTGOMERY (by invitation).

F. C., a man aged 25, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital presents an eruption involving the feet,

the left hand, the shoulder and the chest. The involvement of the feet is of five years' duration, that of the shoulder of three years' duration and that of the hand and chest of one and one-half years' duration.

There are large circinate lesions on the upper portion of the chest, extending along the left shoulder and across the back. The borders of the lesions are raised, well defined and irregular and appear to be made up of pinhead-sized erythematous papulovesicles, some of which are covered with a yellowish scale. There is apparent depigmentation in the central portion of the plaques on the chest and back. This portion is also scaly. The circinate patch on the back extends into the hair line. The hair in this region is not infected. The left palm is thickened and slightly scaly. There are several scaly erythematous papular lesions on the dorsum of the left hand and fingers. Circinate lesions extend about the wrist. The soles of both feet are erythematous, thickened and slightly scaly. There are also irregular scaly erythematous patches on the dorsum of each foot. The nails are apparently not infected.

Examination of the feet, back, chest and hand for tinea gave positive results. Cultures showed Trichophyton purpureum in material from the hands and feet. The Wassermann test and urinalysis gave negative results. Tests with a 1:10 dilution of catarrhal vaccine, a 1:150 dilution of oidiomycin (Lederle), a 1:30 dilution of trichophytin (Lederle), and a 1:100 dilution of trichophytin (Metz) all gave negative results.

A biopsy section from the edge of the lesion on the back showed the following picture: The epidermis was irregularly acanthotic and was covered by a slight horny layer consisting of loose lamellae. In the center of the section, involving the horny layer and showing absence of granular layer, was a mass of cellular elements. These were made up of broken-down cellular elements. The vessels of the upper portion of the cutis were dilated and surrounded by a moderate cellular infiltrate consisting of small round cells and an occasional polymorphonuclear leukocyte. An interstitial and parenchymatous edema of the upper and middle portions of the cutis was present. The epidermis was moderately acanthotic. The microscopic picture suggested tinea.

DISCUSSION

DR. MARION B. SULZBERGER: I wish to discuss this case in connection with the one presented by Dr. Kesten. Again it is evident that something has "gone haywire" in the immunologic response of this patient. The members may recall the case, clinically almost identical with this one, of a man with large circinate rings on the body, which was presented at one of the meetings in the latter part of last year. No fungi were demonstrated in those lesions. In discussing that case I said I believed that fungi must be discovered if one looked long enough. I said this because I had previously observed a case in my office which was clinically identical with that presented tonight as well as with the one presented last year. In my case almost every detail mentioned on the record by Drs. Lewis and Montgomery was duplicated. There was a severe dermatophytosis of the feet, and fungi could be demonstrated with ease in the lesions on the foot. There were large rings which simply extended without cessation on the trunk, neck and other involved areas. One ring apparently began on the neck, extended right up to the hair line and, progressing downward, involved almost the entire chest. In spite of this infection with demonstrable fungi my patient's reaction to several different trichophytins was negative. That was one sign that there was something atypical in the immunologic response. Another point showing the aberrant immunologic response in these cases is that the rings grow to such large size and continue to grow apparently without limit. No immunity develops at the borders of the lesions. In an ordinary case of superficial tinea the rings of fungous infection generally cease to grow, because there is usually an immunity created at the border of the advancing fungous infection. This is shown by the fact that if one superimposes a scratch through and over an old lesion and then infects this scratch with fungi, this does not "take" up to the border of the original lesion but ceases to "take" about ⅛ inch (0.3 cm.) or more away. In

other words, it can be proved that the area just beyond the advancing infection becomes immune. That is the reason why foci of fungous infections do not continue to grow indefinitely to the periphery. In this case there is apparently no such immunity at the border. Theoretically the rings in these unusual cases should extend over the entire body. Another interesting point is the depigmentation produced by the fungous infection. This is probably mechanical; there is irritation, and most of the pigment formed by the previous sun tan is probably lost through desquamation. It is interesting that these atypical conditions are often due to T. purpureum. Apparently this fungus is both less likely to sensitize and less likely to create local immunity (Epstein, S., and Grünmandel, S.: *Arch. f. Dermat. u. Syph.* **161**:395, 1930).

DR. J. GARDNER HOPKINS: I wish to ask Dr. Montgomery whether the fungus was demonstrated in the lesions on the body. The striking thing about the case presented by Dr. Kesten was that numerous organisms were present in all scrapings from the body.

DR. R. MONTGOMERY: Mycelia were fairly easily demonstrated. We have not used any remedies stronger than boric acid ointment and shall not use any until our investigation is complete. We have found it difficult to cure other patients with this particular infection with any type of therapy.

DR. GEORGE M. LEWIS: This patient has been under observation for the past two or three weeks, and the case is still being investigated. His condition has improved somewhat as a result of treatment with boric acid ointment. We have studied about fifty cases of infection caused by this organism and have found that it is an infection difficult to cure. Last winter we presented before the section a teacher who had an infection on the hands and feet of more than seven year's duration caused by T. purpureum. We are still treating him, and he is now almost well. One of the features of infections of the skin due to T. purpureum is that there is practically no cutaneous response to trichophytin. This would seem to be an important factor in the need for prolonged and intensive local therapy.

Progressive Lipogranulomatosis of the Subcutaneous Fat of Unknown Etiology. Presented by DR. G. F. MACHACEK.

F. H., an Irish girl aged 7 years, is presented from the Vanderbilt Clinic because of a condition involving the thighs and legs of eight months' duration. She was admitted on May 8, 1936, with the complaint that for from four to six weeks she had "drooped," had a poor appetite and been irritable. She felt feverish and complained of pain in her legs which caused her to groan, and a rash on, and swelling of, both legs developed. For about four days she complained of sore throat. The swelling became worse and was particularly noticeable at night. Three days before she was admitted to the clinic the face was "puffy." There was also a history of repeated nosebleeds.

On admission an erythematous nodular eruption was noted on the legs and arms. On June 18, 1936, several nodules on the outer aspect of the right thigh were found to be in the subcutaneous fat, not attached to the muscle. At no time was the temperature elevated. Two Kahn tests and repeated tuberculin tests gave negative results. There was no history pointing to exposure to syphilis or tuberculosis. The leukocyte count varied from 15,700 to 9,400; the percentage of polymorphonuclear leukocytes averaged 60, and there were no eosinophils. The number of red blood cells averaged 4,500,000. Repeated examinations of the urine gave negative results. The sugar content of the blood was 90 mg., and the cholesterol content of the serum, 211.3 mg., per hundred cubic centimeters. Cultures of the blood gave negative results. The sedimentation rate was 70 mm. in the first half-hour and 40 mm. in the second. Culture of throat showed Streptococcus haemolyticus. No agglutination was obtained with Bacillus typhosus, Bacillus paratyphosus A, Bacillus typhosus B, Bacillus suipestifer, Bacillus dysenteriae (Flexner, Shiga and Sonne), Bacillus melitensis, Bacillus abortus and Bacillus proteus X 19. Roentgenograms of the chest and bones showed nothing abnormal.

Sections made on June 1 and on June 18, 1936, showed a granulomatous change in the subcutaneous fat. There was an infiltration of lymphocytes, polymorphonuclear cells, plasmocytes and eosinophils. Many foamy cells, some of which were multinucleated, were seen. A proliferation of fibroblasts was noted, which replaced parts of the fat lobules. The interlobular septums were thickened and collagenous. Similar, less marked changes were seen in the region of sudoriferous glands. There were no changes in the striated muscles. Some of the blood vessels were markedly thickened.

At present there are large lesions with red rolled infiltrated borders. These are gradually increasing in size. There is moderate deep-seated tenderness. The central portions are atrophic and appear to have pigmentation of a dirty shade. Other lesions have disappeared; the skin over their sites is perhaps thinner than normal, and the veins show through more clearly. The borders of the lesions on the thighs are about 1 cm. in width.

This case is presented by permission of the Babies Hospital. The section was studied by Drs. Anderson and Paige.

DISCUSSION

DR. PAUL GROSS: The remarkable feature in this case is the development of the lesions. When I first saw the patient at the Babies Hospital, she presented a picture which closely resembled erythema nodosum. At that time my co-workers and I noticed the lack of subcutaneous fat on the lower portion of the legs, which is easy to understand now, since the inflammatory lesions on the thighs have healed in the center, leaving the atrophy of the subcutaneous fat.

DR. A. W. GRACE: I noticed in the report that when the disease first developed Streptococcus haemolyticus was isolated from material from the throat. I do not know whether that was a pure culture or whether the streptococcus was mixed with other organisms. It would be interesting to see if this condition is still active. If the streptococcus is still present, it might be worth while to make an autogenous vaccine from that culture of the organism and treat the patient with this vaccine. Patients with mild erysipelas do well when treated with autogenous vaccines of hemolytic streptococci. In some cases in which no effect can be obtained from the autogenous vaccine, diluted filtrates can be used. It would be interesting also, for the sake of research, to see if that patient had any elevation of the streptolysin titer in the blood. It is known that in some of the chronic infections with hemolytic streptococci the titer may rise. It is better to know the titer before the patient had the disease, but if this is not available at least the present value can be obtained and compared with later titers.

DR. HERMANN FEIT: Clinically the elevated flat areas showing an increased cutaneous temperature become apparent on examination. Besides this, the patient has an inflammation and a tenderness of the inguinal glands on both sides. Also, hemolytic streptococci were recovered from the throat. I was also interested to hear that this patient had chills, although the history states that there was no rise in temperature. From the clinical standpoint I think the condition is an infectious process which has caused changes in the fat.

DR. G. F. MACHACEK: There is a voluminous history in this case. The patient was seen by many other physicians, who apparently did not feel that there was anything particularly important in the results of the physical examination. I did not handle the case by myself. A systolic murmur was heard, and the patient was considered for a time to have rheumatic fever. As far as the culture of material from the throat was concerned, only one other organism was observed, Staphylococcus aureus. Culture of the blood gave negative results, as did various agglutination tests. Roentgenograms of the bones and heart showed no abnormalities. I think this case has been worked up much better than the average case. I present it as one of lipogranulomatosis, a condition which was described fully by Makin. A similar histologic picture has been observed in traumatic necrosis of the breasts. This simulates carcinoma. Pediatricians see more cases of this condition than dermatologists do. They usually consider it benign. Usually the

lesions disappear spontaneously. The condition is known by many different names among pediatricians, such as necrosis of the subcutaneous fat of the new-born, oleogranuloma, circumscribed sclerosis of fat in the new-born and hypertrophic sclerema with favorable evolution. There is an article on it, which is not quite comprehensive enough, in Jadassohn's Handbook. The lesions in their inception, when they looked somewhat like erythema nodosum, were lipogranulomas. There is little change in the skin itself. The change takes place in the fat and extends up to the acini of the glands. Dr. Beryl Paige studied the histologic picture carefully and discussed it with me. The manifestations in the case are interesting, particularly the progressive character of the lesions. I have seen similar, though somewhat more acute changes in cases of diabetes. Nothing is known, apparently, about the cause. The condition is apparently a systemic disease or diathesis—whether it is endocrine or not I do not know. Calcification and formation of cysts have been noted. I have not learned of a single case in which this progressive character has been mentioned.

Parapsoriasis en Plaques and Scleroderma of the Back. Presented by DR. FRED WISE.

H. C., a man aged 76, is presented for Dr. Albert S. Tenney from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital because of an eruption on the back, chest and extremities of fourteen years' duration. The patient presents numerous sharply defined, round, macular, erythematous and scaly patches of various sizes. There are some irregular areas of intense erythema marking the borders of some of the patches. The skin is quite dry and shows diffuse dry scaling over the erythematous patches.

The microscopic diagnosis was parapsoriasis. The vessels of the upper portion of the cutis were moderately dilated and surrounded by a sparse cellular infiltrate composed of small round cells and occasional wandering connective tissue cells. Some of these cells have wandered up into the epidermis. There was moderate interstitial edema of the collagen of the upper portion of the cutis. The epidermis presented no noteworthy changes.

DISCUSSION

DR. CHARLES WOLF: The impression I got clinically was that this man was suffering from seborrheic dermatitis and in addition had numerous seborrheic keratoses.

DR. PAUL GROSS: One may consider the possibility of a parapsoriasis atrophicans, described by Kreibich, although it is doubtful whether such an entity actually exists. On the other hand, the presence of real atrophy in long-standing parapsoriasis en plaques has been repeatedly mentioned.

DR. FRED WISE: I am afraid the history in this case is incomplete. The man has parapsoriasis en plaques, which was demonstrated by histologic examination. In addition to that, one of the members called my attention to a factor omitted from the history—apparently there is a plaque of morphea on the back, which I do not think has any relation to the parapsoriasis. In other words, the patient has a mixed eruption of which one part is undoubtedly parapsoriasis and the other consists of areas of depigmentation which are sometimes considered to be forerunners of morphea. The patient's history is so vague that nothing can be learned from what he says about the duration.

Chronic Serpiginous Ulcerative Pyoderma. Presented by DR. DAVID BLOOM.

A. G., a girl aged 18, is presented from the Bellevue Hospital. This patient was presented by Dr. David Bloom before the Section of Dermatology and Syphilis in 1935 (ARCH. DERMAT. & SYPH. **34**:310 [Aug.] 1936), and by Drs. Howard Fox and Edward R. Maloney before the Atlantic Dermatologic Conference on Nov. 17, 1934.

The patient is now presented as almost cured. Treatment in the past year has consisted of generalized and local ultraviolet irradiation and administration

of tonics. At present there are only soft white scars, slight scaling and erythema in place of the previous persistent ulcerations. One ulcer is still present at the inner side of the thigh. A photograph showing the condition a few years ago is presented.

Erythema Multiforme Perstans. Presented by DR. E. WILLIAM ABRAMOWITZ.

A. N., a woman aged 51, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital presents lesions of two months' duration, which are at present symmetrically located on the arms, the abdomen, the lower portion of the back and the legs and are especially numerous about the knees. The eruption began early in August 1936, as a few localized circinate pea-sized erythematous lesions, with only slight itching, on the right thigh. Thinking that they were hives, the patient did nothing about them for two weeks, but on finding that they were increasing in number and in size, she consulted a physician. She was given an ointment containing 10 per cent ammoniated mercury which she applied only to the lesions. On the following morning she had an acute erythematous eruption which itched a great deal on both forearms, the back and the chest. She then consulted another physician, who gave her a lotion and some intravenous therapy with a product which she thinks was some form of calcium. This cleared up the acute dermatitis, but the circinate lesions still showed an increase in number and became larger. According to the patient's description, the initial lesions started as pea-sized papules which were raised and erythematous but had smooth tops. In about a week an elevated ridge was palpable about the periphery. This in a short time showed breaks in its continuity, and the lesions then became larger, each reaching a maximum size of 5 or 6 cm. Some of the closely associated lesions coalesced to form much larger serpiginous lesions. The centers of the lesions are of varying shades of red and red-brown, with a deeper red raised periphery. The lesions are usually much lighter in the morning, sometimes almost seeming to disappear. There is little itching or local discomfort.

The patient states that she took a compound cathartic pill a short time before her eruption began, which gave her abdominal cramps and made her nauseated. She also takes ex-lax occasionally, and acetophenetidin and acetylsalicylic acid infrequently for headaches.

As a child the patient had hives, due, she thinks, to having eaten crab meat. She had a septic sore throat last winter. A complete hysterectomy was performed in 1925, and this was followed six months later by a thyroidectomy. She has had two miscarriages, one four months after conception (possibly due to a fall) and the other about one month after conception. She took some emmenagog at that time. The family history is irrelevant.

Urinalysis gave negative results. Microscopic examination of a lesion on the left thigh showed erythema multiforme, possibly toxic.

DISCUSSION

DR. FRED WISE: I should like the opinion of the members. Does any one think that the disease is Darier's erythema centrifugum instead of erythema multiforme perstans?

DR. MARION B. SULZBERGER: I think it might be erythema centrifugum of Darier.

DR. ADOLPH ROSTENBERG: I think that clinically the condition closely resembles Darier's description of erythema centrifugum. The only thing against that diagnosis is that these lesions never disappear, according to the patient. Lesions of the type described by Darier clear up and then return, but otherwise, clinically, I think there is a close resemblance to that disease.

DR. SIGMUND POLLITZER: I do not think that this condition resembles Darier's erythema centrifugum at all.

DR. E. WILLIAM ABRAMOWITZ: I do not think it is erythema of either the Darier or the Lipschütz type. New lesions have kept on developing during the past

few months. That is why I made a diagnosis of erythema multiforme perstans. It is a toxic eruption of undetermined origin. I recall a similar eruption which lasted several years and cleared up only after an acute cholecystitis which required surgical intervention had developed.

Granuloma Annulare and Livedo Racemosa. Presented by DR. HERMANN FEIT.

M. O., a girl aged 3½ years, is presented from the New York Society for the Relief of the Ruptured and Crippled. She has a lesion on the dorsum of the right foot of six months' duration. There are two circular lesions, one about 1 cm. and the other about 0.5 cm. in diameter, which show a depressed bluish brown center and an elevated ivory-colored border. There are no signs of inflammation or any discomfort. The patient has also a livedo racemosa, which the mother noticed recently, having paid attention previously only to the lesions of the foot. This might have been present for some time. A sister 2 years old has been treated for intestinal and renal trouble since the age of 3 months. It is not known whether it is tuberculous.

A Case for Diagnosis (Pemphigus?). Presented by DR. GEORGE M. LEWIS.

F. R., a Polish woman aged 48, is presented for Dr. Dorothy Goetze from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital because of a recurrent bullous eruption on the lower portion of the legs and ankles of fifteen months' duration. The lesions usually begin as erythematous macules and develop into bullae in a few days, sometimes reaching a size of from 3 to 4 cm. in diameter. The bullae occasionally arise from normal skin. They break and heal, the process taking from one to two weeks. The patient has not been free from lesions in the past fifteen months. There are itching and burning. There are no lesions on the rest of the body and no oral lesions. The patient states that she has taken aminopyrine, acetylsalicylic acid, ex-lax and a preparation containing phenolphthalein, up to one month ago. She took a barbital derivative with aminopyrine a year ago for a few weeks. The Nikolsky sign was negative.

Wassermann and Kahn reactions were negative. The blood count showed 4,700,000 red cells, 90 per cent hemoglobin and 7,100 white cells. The differential cell count showed 14 per cent young and 49 per cent mature polymorphonuclears, 34 per cent lymphocytes and 3 per cent eosinophils. Urinalysis gave negative results. A smear of fluid from a bulla showed 45 per cent neutrophils and 55 per cent eosinophils. Patch tests with a 50 per cent solution of potassium iodide and with 50 per cent potassium bromide in a proprietary ointment base gave negative results. The Pels-Macht test gave a phytotoxic index of 85. (This test will be repeated.)

The microscopic picture suggested pemphigus. Within the epidermis was a large cavity containing fibrin and some blood cells. There was some degeneration of the epithelial cells beneath the cavity. Throughout the central and upper portions of the cutis the blood vessels were considerably dilated. There was a diffuse cellular infiltrate composed of small round cells and some eosinophils. There was a moderate interstitial edema in the upper portion of the cutis.

Schamberg's Progressive Pigmentary Disease. Presented by DR. HERMAN GOODMAN.

W. C. M., a man aged 42, born in the United States, is married and has three children. He has had no significant illnesses relating to the present cutaneous condition. On Oct. 16, 1935, after an injury to the lower part of the left leg, he noticed a red mark at the site of the present eruption, to which he applied ointments. In December 1935 he noticed that the skin was darker than normal over an area larger than that of the original bruise. The first dark area was about the size of a quarter. Bleeding has never been noticed and the spot has

never been black and blue. The pain was slight and infrequent, and the condition never troubles the patient except for its appearance when he is swimming in public.

On the skin of the lower portion of the left leg, about midway between the knee and the ankle, anteriorly and to the inner side, there is a plaque, 3 by 3 inches (7.6 by 7.6 cm.), more or less sharply defined, varying from red to brown. Spots considered to be areas of telangiectasia are visible through the skin. At the periphery many more puncta are seen which have the appearance of capillary vessels. Higher up and closer to the knee, toward the outer side of the leg, there is a smaller, less reddened area, irregular in outline but essentially the same as the other lesion. Lower down on the leg than the first mentioned lesion are several similar but smaller plaques.

The skin of the right leg shows one area on the anterior surface which seems to be a scar and another area which ranges from red to brown with what are taken to be small vessels showing at the periphery.

The clinical appearance of the eruption warranted the designation of purpura annularis telangiectodes or Majocchi's disease when it was first seen in October. Examination since then has not revealed the changes expected, and the present diagnosis of Schamberg's progressive pigmentary disease is offered, particularly since the areas are larger and darker than when they were first seen and since what were taken for puncta have remained unchanged. Also, no ringlike vascular changes have been noticed.

The case is presented with the request for suggestions as to treatment.

Erythroplasia of Queyrat. Presented by DR. THEODORE ROSENTHAL.

G. L., a man aged 62, born in Spain, has lived in the United States for twenty-eight years. His father died of cancer (?) of the face. The patient has always enjoyed good health. He states that he has not had syphilis. In 1931 he presented an eroded papule on the ventral surface of the glans penis. Dark field examination for Spirochaeta pallida gave negative results. The Wassermann and Kahn reactions, at the time of admission and again seven weeks later were negative. At no time was there inguinal adenopathy.

The patient disappeared from observation and reappeared in September 1936. He then presented two sharply circumscribed, elevated moist red velvety plaques, one of which was about 0.5 cm. in diameter (which was excised for histologic examination) and the other one larger, about 1.5 by 2 cm., irregular in outline and involving the ventral surface of the glans near the meatus, the sulcus and the adjacent inner surface of the prepuce. The lesions were firm and moist and did not produce any subjective symptoms. There was no inguinal adenopathy. Wassermann and Kahn reactions were negative. The patient estimates the total duration of these lesions now as being between six and seven years; the rate of growth is slow.

A histologic examination by Dr. G. F. Machacek of sections of the mucous membrane of the prepuce showed some striking changes. The mucous membrane at one end was slightly hypertrophied; at the other end there was a marked acanthosis. There were a marked edema, which was both intracellular and extracellular, and a moderate leukocytic infiltration. Over the two areas at the ends there was definite evidence of keratosis. The intervening zone contrasted sharply with these. There was no evidence of a keratin layer. Many polymorphonuclear leukocytes were seen, but the most striking feature was the peculiar proliferation to a relatively even depth of epithelial cells, which had large nuclei and were basophilic. A few mitotic figures were noted. An occasional hydropic cell was present, and though the buds were well defined, they had somewhat the appearance of basal cell epitheliomas. At the edges they contrasted sharply with the large polygonal, more eosinophilic squamous cells. It was also at this junction of normal and abnormal epithelium that the mitotic figures were most conspicuous and numerous. The connective tissue of the papillae and that of a considerable zone beneath this showed an extremely marked infiltration of leukocytes. There were large numbers of lymphocytes and plasmocytes; a few polymorphonuclear leuko-

cytes were also seen. There was a marked vascularity. The end of the section which showed least acanthosis had melanin in the basal layer of the epithelial lining.

The sections represented a definite epithelial change, which might best be described as a precancerous process, and which appeared to have taken place as a result of the proliferation of cells resembling those of the basal layer.

The diagnosis was erythroplasia of the preputial mucosa.

J. GARDNER HOPKINS, M.D., *Chairman*

Nov. 4, 1936

DAVID BLOOM, M.D., *Secretary*

A Case for Diagnosis (Eruption Resembling Lichen Planus Following Exfoliative Dermatitis?). Presented by DR. EUGENE F. TRAUB.

C. O'L., a man aged 50, an engineer, was seen at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital on Sept. 28, 1936, presenting an eruption of nine months' duration. The patient had a penile lesion in 1911; this was treated locally with mild mercurous chloride and cleared up in about one month. He received no antisyphilitic treatment. He had malaria while he was in Africa in 1926; this was so severe that he was hospitalized for three months. He has had severe gastric pains, resembling gastric crises, since 1926, but no definite diagnosis has been made. At the Gouverneur Hospital routine studies showed positive serologic reactions. In January 1936 antisyphilitic treatment consisting of two injections weekly was instituted, a preparation of bismuth and one of arsphenamine being given alternately. Treatment was continued for sixteen weeks, i. e., until late in April or early in May 1936. At that time, while an intravenous injection was being given, some of the material went outside the vein into the left antecubital space. An area of induration developed, and a few days later this began to exfoliate. Marked generalized edema occurred. The patient remained in the hospital for fifty days. He has lost 45 pounds (20 Kg.) since May 1936 and continues to lose weight. He has received fourteen injections of sodium thiosulfate. One injection of liver extract seemed to aggravate the eruption which was present on the legs.

When the patient was seen on Sept. 28, 1936, there was an eruption on the arms, trunk, legs, scalp, palms and soles, which consisted of disseminated papular and excoriated lesions of various sizes, some of which were pigmented. The legs showed an erythematous, exfoliative and excoriated eruption. Alopecia and scaling of the scalp were noted. There was keratoderma of the palms and soles, and the nails were hyperkeratotic. Furuncles were present in the axillae, groins, scrotum and right thigh.

Since that time new furuncles and cutaneous lesions have appeared, but recently there seems to have been some improvement.

Urinalysis gave negative results. On Sept. 28, 1936, the Wassermann reaction was 4 plus; the Kahn precipitation test gave a doubtful and the presumative Kahn test a 3 plus reaction. The results of a histologic examination made on the same date were reported as follows: The vessels of the upper portion of the cutis were dilated and surrounded by an infiltrate which was moderate in amount and of the small round cell variety. The epidermis was moderately acanthotic. The usual evidence of arsenical dermatitis was lacking. The morphology could not be observed in detail owing to the use of a fixative which had shrunk all the tissue.

DISCUSSION

DR. J. GARDNER HOPKINS: I think that most of those who saw this patient were impressed with the fact that he presents an unusual type of eruption. It is

not the usual lichen planus-like type of eruption following arsphenamine. The lesions are distinctly atrophic.

DR. ISADORE ROSEN: I wish to ask the presenter whether there were any active lesions at the sites of the pigmented areas. The lichen planus-like eruptions resulting from the use of arsenic are difficult to differentiate from idiopathic lichen planus. This patient presents no clinical evidence of any active lesions of lichen planus, and therefore it would be difficult to make a definite diagnosis. All one can say is that the patient has pigmentation following a previous eruption.

DR. EUGENE F. TRAUB: I did not see the patient originally, nor did I give him his antisyphilitic treatment. I saw him only after the exfoliating eruption had appeared. Therefore, I cannot say definitely whether the lesions are on the sites of previous syphilitic lesions. I doubt whether any one can answer that question, because, according to the history I obtained, his eruption of secondary syphilis must have occurred at least from twenty to twenty-five years ago.

Lupus Vulgaris and Epithelioma. Presented by DR. E. WILLIAM ABRAMOWITZ.

A. E., a woman aged 68, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. On the face and scalp are lesions of lupus vulgaris of fifteen years' duration. The duration of the epithelioma is one year. Both cheeks, a part of the forehead, the front and back of the neck and a part of the scalp show a sharply marginated brown scaly infiltration. On the right side of the face and neck there is extensive depigmentation with scarring. The lobe of the right ear shows a cicatrix; the right lower eyelid, a marked ectropion, and the tip of the nose, marked hypertrophic enlargement. On the bridge of the nose there is a red raised granulomatous area the size of a dollar, possibly a squamous cell epithelioma.

DISCUSSION

DR. PAUL E. BECHET: I think it would be interesting for Dr. Abramowitz to ascertain whether this woman has received any roentgen therapy, because in most cases epithelioma arises on patches of lupus vulgaris overtreated with roentgen rays. Epithelioma does occur on old patches of lupus vulgaris which have not been treated with roentgen rays but by no means as frequently as on sites which have been irradiated.

DR. MAX SCHEER: I saw this patient about four years ago in my office; she came for one or two visits. The condition was essentially the same then as it is now except that there was no epithelioma. I do not agree with Dr. Bechet's statement that epithelioma rarely develops on the sites of lupus vulgaris. I think epithelioma in patients with lupus vulgaris is not rare, even if the patients have not been treated with roentgen radiation, although it does occur much more commonly in those who have received roentgen therapy. This woman's daughter was with her when she came to see me, and the daughter did not refer to roentgen treatments.

DR. E. WILLIAM ABRAMOWITZ: I believe the literature indicates that there is no difference in the occurrence of epithelioma in lupus vulgaris in patients who received roentgen treatment and in those who did not. That question has been raised from time to time. The incidence of epithelioma in association with lupus erythematosus is much less than that in association with lupus vulgaris.

Lupus Vulgaris. Presented by DR. FRED WISE.

J. M., a man aged 27, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital because of an eruption on the left side of the face of twenty years' duration. The patient has received various types of treatment, including roentgen radiation, radium, solid carbon dioxide and pyrogallol. He was put on a salt-free diet, but apparently there has been no improvement.

The eruption involves most of the left cheek in an unusual configuration suggestive of the map of Africa. It is of a dusky yellowish brown color. The

superior medial border is slightly indurated. Yellow apple jelly nodules appear on pressure with the diascope. As a result of previous treatments there is considerable telangiectasia involving the inferior medial border of the lesion. The main portion of the lesion is covered with fine adherent scales.

The results of intracutaneous tests with 0.1 cc. of old tuberculin made on April 6, 1936, were as follows: A 1:1,000,000 and a 1:500,000 dilution each gave a negative reaction; a 1:100,000 dilution gave a doubtful reaction, and 1:10,000, 1:5,000 and 1:1,000 dilutions gave 4 plus reactions. Roentgen examinations of the chest showed no abnormalities.

The patient received injections of 0.1 cc. of tuberculin at five and then at seven day intervals. For the first seven injections a 1:50,000 dilution was used, for the next seven a 1:25,000 dilution, for the next eleven a 1:20,000 dilution and for the last three a 1:15,000 dilution. There has been a slow but gradual improvement in the lesion. The border has flattened considerably, and the scaling has become less prominent. The small isolated nodule has undergone involution so that at present it is a small flat pigmented area.

DISCUSSION

DR. LEWIS B. ROBINSON: This patient was on a salt-free diet at the Vanderbilt Clinic for about one and a half years, and I think there was some improvement; certainly the lesion looks much flatter and has improved considerably as a result of treatment with tuberculin. Distinct improvement has taken place since I saw him last April.

DR. MARION B. SULZBERGER: I did not know until this evening that this man had previously been on a salt-free diet. I believe that salt-free diets are beneficial in cases of tuberculoderms but that it is usually impossible to have such diets properly followed by ambulatory patients. Old tuberculin, given intracutaneously in graded doses increasing as the tolerance of the patient's skin increases, is a useful adjuvant in the treatment of some selected tuberculoderms. I am, however, not enthusiastic as to the possibility of achieving cures with this method alone. By intracutaneous injection of gradually increased amounts one often arrives at a stage at which the skin tolerates much higher doses of tuberculin than it did originally; and synchronously with this increased tolerance there seems to be improvement even in lupus vulgaris. Certainly in such conditions as Bazin's disease and papulonecrotic tuberculids improvement does occur. However, I have never observed a case of lupus vulgaris in which absolute cure resulted from this type of treatment alone. There has always been some activity left even after the tuberculin tolerance has been increased considerably. Furthermore, as soon as the treatment is discontinued it frequently happens that within periods varying from one to three months the skin when tested again with tuberculin shows a return to its original degree of sensitivity. The skin of each patient seems to have a certain natural degree of sensitivity to tuberculin, and that sensitivity can be depressed only temporarily. Perhaps the use of more potent solutions, or rather of more polyvalent extracts, will produce better results. Recent research work on tuberculin, particularly the studies of W. Jadassohn, has shown that old tuberculin Koch as used today contains only a few of the allergens contained in the tubercle bacilli and that by preparing other extracts by different methods one can obtain much more polyvalent mixtures of allergens from the tubercle bacilli.

DR. J. GARDNER HOPKINS: I hate to see it go unquestioned on the record that this patient failed to improve on a salt-free diet, the implication being that the salt-free diet failed, without having it stated that it was used on an ambulatory patient. A patient under the care of Dr. Kesten improved remarkably while following such a diet in the hospital and promptly showed a relapse each time she went home. Dr. Robinson said that this patient improved for a while, and I do not think the fact that the improvement stopped can be traced entirely to this rather difficult therapy, which is so often effective when thoroughly carried out.

Xeroderma Pigmentosum. Presented by DR. MARION B. SULZBERGER.

CASE 1.—I. N., a youth aged 18, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital because of lesions on the forearms, arms and chest for three years' duration. He had freckles during the first year of life, which have persisted. Since he was 3 years old he has had on the right side of the nose two ulcers which clinically resemble epitheliomas. There are five children in the family. One brother, aged 11 years, has freckles and a few sores on the face.

The patient presents freckles, areas of pigmentation and depigmented spots on the forearms, arms and chest. On the side of the nose, ½ inch (1.27 cm.) from the eye, is a pea-sized ulcer with sharp edges. On the same side, near the ala nasi, is another pea-sized ulcer, with a scab.

Urinalysis showed a normal specific gravity (1.021), an alkaline reaction, no albumin, sugar or indican and numerous pus and a few epithelial cells.

CASE 2.—H. N., a boy aged 11 years, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital because of lesions on the face, chest and forearms of nearly eleven years' duration. The "pigmented" spots first appeared below the eyelids at the age of 9 months. The affected areas are studded with areas of pigmentation from the size of a pinpoint to that of a pinhead, and there are a few depigmented zones interspersed, chiefly on the forearms. On the right cheek there is an area of atrophic scarring the size and shape of a bean. On the left cheek there are one pea-sized denuded area and two areas surrounded by a pearly infiltrated border. There is a verrucous lesion near the lower lip, and a somewhat keratotic brownish black lesion is present on the elbow. The family history discloses no evidence of consanguinity. There are five children. The patient and one brother (Case 1) are similarly affected. There is no history of photophobia.

Urinalysis gave negative results except for a trace of indican. A histologic examination made on June 16, 1936, showed basal cell epithelioma.

DISCUSSION

DR. J. GARDNER HOPKINS: An interesting thing is that one boy shows only extraordinary freckling, on the basis of which one would hesitate to make a diagnosis of xeroderma. However, when the brother who exhibits atrophy and epithelioma as well is seen the diagnosis seems evident. This suggests that the diagnosis may be overlooked when the involvement is mild.

DR. MARION B. SULZBERGER: Recently Eder, in California, (*Arch. Pediat.* **52:**833 [Dec.] 1935) has recommended internal administration of iron in cases of photosensitivity, even when hematoporphyrinuria is present and when there is no anemia. It would be well to try iron in all the cases of photosensitivity and in cases of severe freckling.

Adenoma Sebaceum with Papilloma of the Toe. Presented by DR. E. WILLIAM ABRAMOWITZ.

J. P., a girl aged 15, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. She has lesions on the nose, forehead and cheeks of ten years' duration and numerous confluent and discrete papular lesions from the size of a pinpoint to that of a pea on the entire face. The papules are from erythematous to brown; some are skin colored. At the base of the nail of the left middle toe there is a pinhead-sized elevated smooth hard nodule. No other member of the family suffers from the dermatosis.

Microscopic examination showed adenoma sebaceum.

A complete neurologic examination showed no abnormalities. According to the history the patient sustained a fall many years ago and had convulsions during childhood. Data as to both of these items are incomplete. No data are available as to unconsciousness, hospitalization, fracture and duration of convulsions.

However, at the present time the patient manifests neurologic abnormalities with the exception of marked mental retardation.

DISCUSSION

DR. PAUL GROSS: Undoubtedly the papilloma of the toe is part of the picture of adenoma sebaceum of Pringle, as pointed out by Reitman and others, but in several cases of Pringle's nevus associated with lesions on the toes, I have found that there was more or less pronounced evidence of Recklinghausen's disease on the body. In this case it would be interesting to ascertain whether there are many lesions on the trunk. Some of the tumors on this patient's forehead are rather large for lesions of Pringle's disease and could be interpreted as other types of nevi or as adenoma sebaceum of the Balzer type.

DR. E. WILLIAM ABRAMOWITZ: The reason for presenting this case is to call the attention of the members to the lesions on the toes. They are encountered probably more often than one suspects. Patients who exhibit such lesions frequently have Recklinghausen's disease as well as other types of maldevelopment. I do not believe there are abnormalities on the rest of this patient's body. The question of mental retardation always arises in these cases. My own observation seemed to indicate that this patient is normal mentally, but the neurologists thought that she was retarded.

Cylindroma. Presented by DR. MARION B. SULZBERGER.

V. D., a man aged 28, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. He has a lesion on the right cheek of one year's duration which has been slowly growing. He has never had any pain. He now presents a fairly sharply circumscribed, slightly elevated, slightly erythematous lesion of hard elastic consistency, with a definite slightly irregularly depressed center and a slightly lighter colored abrupt edge. The clinical diagnoses considered were granuloma annulare, scleroderma and sarcoid.

Histologic examination gave results as follows: Throughout the cutis there were groups of cells. The connective tissue was somewhat increased and the connective tissue cells were more numerous than normal. The cell groups consisted of densely set cells with deeply stained nuclei and little or no cell body. The groups were surrounded by a connective tissue sheath. The histologic diagnosis was embryonic naevus pilosus.

Suggestions for therapy are requested.

DISCUSSION

DR. EUGENE F. TRAUB: I do not like to say that I thought the lesion was an epithelioma when I looked at it, but actually I could think of no condition except a morphea-like epithelioma which could produce this picture in this location. That is only an opinion based on clinical observation. Judging from the histologic structure the lesion cannot be a naevus pilosus, though hairs may be found in the section as it was taken from a hairy area. The name naevus embryonicus—the term apparently being one that somebody has recently coined—is certainly not a usual designation for a nevus and should not be used. This lesion should be excised. A good linear excision can be made in this location, and a good result may be expected both from the standpoint of complete removal and from that of cosmetic appearance. I do not believe that these lesions as a rule respond particularly well to irradiation in a dosage which would be at all suitable.

DR. MARION B. SULZBERGER: I thank Dr. Traub for the suggestions as to therapy. I shall see that the lesion is excised in toto.

Basal and Prickle Cell Epitheliomatosis Following Arsenic Medication. Presented by DR. EUGENE F. TRAUB.

N. B., a woman aged 68, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, presents lesions on the face, chest, back and abdomen of thirty-five years' duration. About forty years ago this

patient took an arsenic preparation, the exact formula of which is unknown, for acne. The medication was continued for four years. A few years after that she noticed an eruption on the chest, and gradually the eruption spread to other parts of her body. This was diagnosed at various times as psoriasis and eczema. Since 1914 she has had numerous tumors removed by electrosurgery. In July 1935 she received roentgen treatments at the Hartford Hospital, Hartford, Conn. Itching has been a prominent feature.

On the face, chest, back and abdomen there are polymorphic lesions ranging from small erythematous eczematous patches to fungoid-like tumor masses. Between the scapulae there are three well defined punched-out areas about 4 cm. in diameter which have purulent bases. The tumors bleed easily.

A urinalysis made on Oct. 28, 1936, showed a trace of albumin and from 20 to 30 red blood cells per high power field. A blood count made on Oct. 30, 1936, showed 2,230,000 red cells, 40 per cent hemoglobin and 9,650 white cells. The differential cell count was normal.

DISCUSSION

Dr. Myles Standish, Hartford, Conn.: I saw this patient in 1935 in the Hartford Hospital. At that time she stated that she had been treated for psoriasis for many years, presumably with arsenic. The large lesion on the upper part of the back looked much like a squamous cell epithelioma. The first histologic examination was unsatisfactory. A second examination showed squamous cell epithelioma. Material from one or two lesions on the leg which looked like keratoses was examined microscopically and showed true basal cell epithelioma. A course of high voltage roentgen therapy was prescribed, but the patient left the hospital before the course was completed, leaving against advice. I have not seen her again until tonight, but it is evident that many of the lesions on the body have changed, becoming fungating and hypertrophic. None of them was like that a year ago. Most of the new lesions look as though they had a pearly border.

Dr. Paul Gross: It is important to realize that clinically, and I presume histologically, the condition is multiple superficial basal cell epithelioma associated with squamous cell cancer. Histologically one would expect to find multicentric basal cell epithelioma besides typical squamous cell tumors, as in Fordyce's so-called pagetoid epithelioma. This case, like that of a private patient of mine, seems to support the conception of Ayers and Anderson that this type of epitheliomatosis can be the result of chronic arsenical poisoning and also shows that multiple superficial basal cell epithelioma is not always benign.

Dr. Eugene F. Traub: Several of the early lesions have already been given superficial roentgen radiation, and I plan to treat all the early lesions that way. The squamous cell tumor on the back I plan to excise with the electric cutting current. Any of the other lesions which I suspect of being squamous cell tumors I shall treat with wide excision, allowing the wounds to granulate in without skin grafting. This can readily be done regardless of the age of the patient or of the size of the area involved. It may take a number of months for the wound to granulate, but the cosmetic result is generally surprisingly good. The scars are flat and superficial; they are usually on the level with the normal skin, and the scar retraction may reduce the size of the area so that the final scar is less than two-thirds the area of the original excision wound. I have repeatedly removed lesions from the back or abdomen, excision of which necessitated a wound measuring as much as 7 inches (17.78 cm.) in all diameters, and perfect healing has resulted.

Epithelioma on the Upper Lip in a Woman. Presented by Dr. A. W. Grace.

K. M., a woman aged 59, born in Greece, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, presents a lesion on the upper lip which has existed for the past twenty years and has gradually increased in size during that time. It was confined to the upper lip until three months ago, when it began to involve the vermilion border. There is no history of pipe smoking.

The ulcer is centrally placed; it is shallow and oval and measures ¾ by 1 inch (1.9 by 2.5 cm.). It extends on to the vermilion border of the lip, where there is another shallow ulcer of similar type, measuring ½ by ½ inch (1.3 by 1.3 cm.). The edge of the lesion is definitely rolled, and the base is covered with a yellow slightly adherent crust. The whole lesion is indurated and relatively painless. Slight bleeding occurs when the crust is removed. There is no enlargement of the neighboring glands.

DISCUSSION

DR. EUGENE F. TRAUB: The ulcer is a mixed lesion consisting of a basal cell growth on the skin and a squamous cell growth on the lip.

DR. CHARLES WOLF: In basal cell as well as in squamous cell epithelioma the degree of malignancy varies. The squamous cell type of carcinoma is more malignant than the basal cell type. However, in the course of years of observation squamous cell epithelioma may appear benign with respect to extension. This case brings out that point. The biopsy specimen was probably taken from the skin portion of the lesion and not from the vermilion border, and the diagnosis of squamous cell epithelioma was probably made on that portion of the lesion.

Early Stage of Mycosis Fungoides Following Parapsoriasis. Presented by DR. E. WILLIAM ABRAMOWITZ.

S. H., a man aged 42, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, because of lesions on the hands and feet of eight years' duration. He was presented at a meeting of the Section of Dermatology and Syphilis of the New York Academy of Medicine in March 1934 (ARCH. DERMAT. & SYPH. **32**:597 [Oct.] 1935).

The patient had only parapsoriasis until May 1936, when a histologic examination was made in this clinic. He was given a prescription containing 2 per cent menthol, and when he applied it, his hands and feet immediately became sore and cracked. The axillary and inguinal lymph nodes became enlarged. He left the clinic and consulted a private physician, who gave him ten injections of sodium thiosulfate because four years ago he had taken from 3 to 7 drops of solution of potassium arsenite three times a day for six months, and more recently had taken from 5 to 10 drops of that drug three times a day for six months before he was seen on June 6, 1936. He was also given ten injections of autogenous blood and eight injections of calcium gluconate. For twelve years the patient has worked in a dry cleaning plant, where he comes in contact with fluid vonanine. Since the present illness developed contact with the fluid aggravates his dermatitis, which improves when he leaves work. There is marked pruritus.

Urinalysis gave negative results. The blood count showed 86 per cent hemoglobin, 4,280,000 red cells and 11,200 white cells. The differential count showed 62 per cent polymorphonuclear leukocytes, 27 per cent small lymphocytes, 3 per cent large lymphocytes, 2 per cent mononuclears and 6 per cent eosinophils.

A histologic examination made on Sept. 3, 1936, showed early mycosis fungoides.

The clinical diagnosis is exfoliative dermatitis.

DISCUSSION

DR. E. WILLIAM ABRAMOWITZ: I do not mean to imply that the lesions of mycosis fungoides resulted from the parapsoriasis. According to histologic examination the patient originally had parapsoriasis, and recently this exfoliating eruption developed. Histologic examination of material from an erythematous scaly patch now indicates that the condition is probably an early stage of mycosis fungoides.

A Case for Diagnosis (Plummer-Vinson Syndrome?). Presented by DR. A. W. GRACE.

C. A., a woman aged 65, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, has lesions in the mouth of five

years' duration. On the buccal mucosa, on both sides of the mouth, are approximately circular erythematous ulcerated areas measuring 1 inch (2.5 cm.) in diameter. Both sides look alike, but the right side is more tender than the left. There is no cervical adenopathy. The patient says that she took agarol (an emulsion of liquid petrolatum and agar containing phenolphthalein) and "liver pills." She has observed that the agarol makes her mouth worse. For the past five years there have been pain and a burning sensation in the mouth. For the past six months there has been difficulty in swallowing. There are no lesions elsewhere on the body.

Treatment has been carried on for three weeks with capsules containing a mixture of liver and stomach extract and iron, administered two or three times a day after meals. In the first two weeks of treatment the lesions appeared to improve. Since then they have regressed, and they are as bad now as they were before treatment was instituted.

A blood cell count showed 3,300,000 red cells, 70 per cent hemoglobin and 4,000 white cells. The differential cell count showed 49 per cent polymorphonuclear neutrophils, 3 per cent early forms, 40 per cent lymphocytes, 3 per cent monocytes and 5 per cent eosinophils. There is slight anisocytosis.

DISCUSSION

DR. E. WILLIAM ABRAMOWITZ: An erosive lesion in the mouth may be produced by antipyrine, by various kinds of arsphenamine, by barbiturates, by phenolphthalein, by bismuth, by cinchophen, by iodides, by mercury and perhaps by a few other drugs. The literature on phenolphthalein does not mention any changes in the blood resulting from the use of this drug. Besides drugs, there are other things just as important that should be investigated carefully, namely, the patient's dietary habits. There is a type of microcytic anemia associated with changes in the nails. Is this present in this patient?

DR. LOUIS TULIPAN: When I saw this patient I thought of a possible phenolphthalein eruption. I therefore investigated what drugs she had been taking, and she told me specifically that she had taken large doses of ex-lax for at least four or five years before taking liver pills and agarol. Many patients with an eruption in the mouth cannot eat much and have anemia as a result. I think that in this case the microcytic anemia can be ascribed to that fact. I believe the possibility of a phenolphthalein eruption should be investigated before the diagnosis presented is accepted.

DR. FRED WISE: What, if any, changes are present in the gastric juice? Are there any changes in the spinal cord in microcytic as in pernicious anemia?

DR. J. GARDNER HOPKINS: I am glad this case was presented. The Plummer-Vinson syndrome is extremely interesting. I knew nothing about it until Dr. Rhodes, of the Rockefeller Institute, called my attention to it. Another symptom of the syndrome seems to be kraurosis vulvae. It is interesting to note the similarity of lesions of kraurosis vulvae to the leukoplakia-like lesions in the mouth. In one case which Dr. Rhodes observed the condition had been diagnosed as lichen planus of the mouth by a number of excellent dermatologists, but it cleared up completely as a result of vitamin therapy. I am glad that Dr. Grace presented this case.

DR. A. W. GRACE: As to the question of Dr. Wise about changes in the gastric juice, I wish to state that the majority of patients with this condition have achlorhydria, but one must remember that a large number of elderly persons have achlorhydria. So far as I know, there is no achylia, that is, lack of stimulation of the production of hydrochloric acid after administration of histamine. There are no changes in the spinal cord. There is no subacute combined sclerosis of the cord such as is present in some cases of pernicious anemia. As to the possibility that the whole picture may be caused by ingestion of phenolphthalein, I must say that I do not remember having read anywhere of dysphagia due to involvement

of the esophagus which has been actually traced to the effect of phenolphthalein. I am not sure whether microcytic anemia precedes oral lesions in cases of phenolphthalein poisoning as it does in some cases of the Plummer-Vinson syndrome.

Extensive Fixed Arsphenamine Eruption. Presented by Dr. Louis Chargin.

H. F., a Negro aged 41, was admitted to the clinic on March 31, 1933. Except for a positive Wassermann reaction the patient showed no evidence of syphilis, and he stated that he did not receive antisyphilitic treatment. After fourteen injections of arsphenamine had been given a fixed eruption developed. In order that arsenical medication might be continued other preparations of arsphenamine were tried in succession, and the results were as follows: Arsphenamine, neoarsphenamine, silver arsphenamine and mapharsen caused positive reactions; tryparsamide, sulfarsphenamine, acetarsone administered orally, phenolphthalein and antipyrine caused no reaction. A patch test with arsphenamine gave negative results.

Many lesions are present. They vary in size from that of a pea to that of a silver dollar; most of them are round; some are oval. They are isolated or grouped in patches and are darkly pigmented. The eruption is most marked on the face and neck, but there are numerous lesions on the trunk, arms, legs and genitalia. The lesions are for the most part smooth; a few, however, are slightly scaly. The palms, soles and mucous membranes are not involved.

DISCUSSION

Dr. Charles Wolf: The interesting feature about the tests that were made in this case is that the reactions obtained with the trivalent group of arsenicals were positive, whereas those to the pentavalent group were negative. I believe sulfarsphenamine was one of the arsenicals used for testing, and it gave a negative result. It is a trivalent arsenical, and it is difficult to explain this paradoxical reaction.

Dr. J. Gardner Hopkins: This case interests me because I remember a case of a like condition in which the lesions at the outset were urticarial. There were enormous urticarial wheals which always appeared on the same spots, and after repeated flare-ups the lesions became pigmented. The patient finally presented areas of deep pigmentation in the spots where urticarial lesions had been present.

Dr. Paul Grosss Does Dr. Chargin feel that a fixed eruption is an indication that injections of arsphenamine should be discontinued? I was confronted with this problem a few years ago, and a number of dermatologists with whom I discussed this question seemed to think that the treatment with arsphenamine should be continued.

Dr. E. William Abramowitz: Have injections of epinephrine been tried as a preventive?

Dr. Louis Chargin: No, they have not been tried in this case as yet. My co-workers and I are now studying a series of cases of fixed eruptions to determine whether patients who react with a fixed eruption to one trivalent arsenical do so to all the others and whether these patients react to the other drugs that produce fixed eruptions. We have a fairly large series, but the study is not completed as yet. The case under consideration is one of this series. In reply to Dr. Gross' question, I wish to state that especially in cases of early syphilis in which arsenical therapy is so important this experiment should prove of great value since experience has already shown that a patient may be sensitive to one of the arsenicals and not to another. Moreover, we have observed numerous instances in which a patient sensitive to a particular arsenical failed to respond when a subsequent injection was given. Although a fixed eruption is seldom a forerunner of a more serious eczematous eruption, it constitutes a definite drawback to arsenical therapy since it so frequently appears on the face. Another interesting point is that fixed eruptions are not pigmented. I have under my care a patient who always responds to administration of neoarsphenamine with

two lesions on the face, but these never become pigmented, even if many injections are given. Of interest is the fact that he showed no response to administration of silver arsphenamine or of mapharsen.

A Case for Diagnosis (Pigmentation). Presented by DR. HERMANN FEIT.

S. W., a woman aged 40, born in Austria, is presented from the Society for the Relief of the Ruptured and Crippled. On the left infraspinous region of the scapula is a smoke-colored patch the size of a palm, which has reached its present size in one year. On the other side of the spinal column is a similar patch, which is much smaller. The patient complains of pain when pressure is applied. There also is considerable itching. There are wavelike striae in this area, running in parallel lines from the right upper to the right lower part of the patch. The patient is being treated for arthritis and has received about ten injections of a gold preparation since January 1936. She states that she had the discoloration and discomfort before the treatment was begun. There is no history of any applications to this lesion. She has always had a heavy growth of hair on the legs and thighs. Although she has never had severe headaches and has not gained much weight, the peculiar linear atrophies with pigmentation point to an endocrine disturbance. Cushing's disease (basophilic adenoma) can be ruled out. She has had a lipoma removed.

DISCUSSION

DR. LOUIS TULIPAN: I noticed that there is pigmentation on both sides of the back, and from what I understand the pigmentation on the right side has appeared recently. The patient states that she applied mustard plasters to the region on the left side about a year or two ago, before this pigmentation appeared. In some persons pigmentation develops at the site of any kind of inflammation or irritation of the skin. Recently a lipoma was removed from the right side, and there is a linear scar at that site. Adhesive plaster was applied, and it seems that the pigmentation follows the line of the adhesive plaster. I believe that the eruption is the end-result of irritation from mustard plasters on one side and of irritation from adhesive plaster on the other.

Mycosis Fungoides Recurring After Roentgen Therapy. Presented by DR. EUGENE F. TRAUB.

B. G., a woman aged 39, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital was first seen in October 1927, at which time she presented an eruption around the right eye and patches on the body which responded to treatment for seborrheic eczema. In March 1930 she was admitted to the hospital with unquestionable mycosis fungoides. There were lesions on the face, breasts and back. As a result of roentgen treatment the lesions cleared up well. Until the present recurrence, thirty-two doses of one-fourth skin unit of radiation had been given to different parts of the body. The patient was again seen on Nov. 2, 1936, when she presented a recurrence of the eruption.

DISCUSSION

DR. FRED WISE: Has blastomycosis been excluded? I do not favor that diagnosis, but I should like to know if it has been considered.

DR. J. GARDNER HOPKINS: In the only two cases of blastomycosis which I have studied there were small miliary abscesses along the border of the lesions, which I do not believe this patient presents. Of course, the general configuration suggests blastomycosis.

DR. EUGENE F. TRAUB: This patient was first seen only two days ago and has refused to submit to removal of tissue for biopsy.

Lupus Erythematosus with Ocular Changes. Presented by DR. E. WILLIAM ABRAMOWITZ.

N. E., a woman aged 43, is presented from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital. She has an eruption

of four months' duration consisting of numerous small red areas with scaling over the cheeks, on the forehead and on the nose. She had a similar eruption seven years ago.

The microscopic diagnosis is lupus erythematosus. The patient is presented because examination of the fundi showed mild changes in the blood vessels.

DISCUSSION

DR. E. WILLIAM ABRAMOWITZ: Goldstein and Wexler, of the Mount Sinai Hospital, have reported vascular disease of the retina in a case of acute lupus erythematosus disseminatus (*Arch. Ophth.* **8**:852 [Dec.] 1932). A patient with the fixed discoid type of lupus erythematosus complained of some visual disturbances, and ophthalmologic examination showed changes in the vessels of the retina. My co-workers and I have another case of the discoid type of lupus erythematosus in which the findings are similar. The ocular involvement is called simple retinitis. I think it is important to examine the eyes before proceeding with treatment.

Onychia. Presented by DR. GEORGE M. LEWIS.

E. W., a girl aged 19, from the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, presents a disturbance of the nails which, she states, began on the left thumb about fourteen months ago. Within a month marked pitting and slight discloration of all the nails of both hands developed. The rest of the body is clear with the exception of the feet, which show slight scaling and fissuring. No one in the patient's immediate family has a similar condition. She has had no constitutional diseases and no other cutaneous manifestations within the past years. There has been no paronychia at any time. The patient has not consulted a physician recently and has received no treatment for this disease.

DISCUSSION

DR. E. WILLIAM ABRAMOWITZ: There are many conditions that are accompanied by pitting of the nails. It is reported to occur in association with tuberculosis, rheumatic fever and various fevers of long duration. I think, therefore, that one should be slow in calling the condition psoriasis. Pitting of the nails is a more adequate term than onychia in this instance.

DR. PAUL GROSS: One has to make a distinction between scattered pitting of perfectly smooth nails and the roughened, scaly appearance of the nails with numerous pits which is present in this case. I know of no condition other than psoriasis that produces this picture.

DR. CHARLES WOLF: This patient may have a small lesion such as a psoriatic papule on some part of the body. If she has none at present, she will probably exhibit such lesions later. From a clinical standpoint, the nails are psoriatic.

DR. MAX SCHEER: I do not agree with those who call this condition psoriasis of the nails. It should be called changes in, or pitting of, the nails in a psoriatic patient, for it may occur in a person with tuberculosis, with a rheumatic condition or with some other chronic disease. There is only one condition which may rightfully be called psoriasis of the nails, that is the psoriatic papule under the nail which can be seen through the nail as a pinkish red scaly spot. It is a rare condition. Another change of the nails seen more commonly in psoriasis, which probably is psoriasis and which I have observed in association with psoriasis more often than pitting, is a brownish pigmentation of the nails. It was pointed out to me by Dr. Sulzberger, whose attention was called to it by Professor Jadassohn. This dystrophy of the nails or pitting occurs in psoriatic patients as well as in patients with other diseases, but is not psoriasis of the nails.

DR. HERMAN GOODMAN: Do the pits that are present disappear, or do the new nails grow out without pits?

DR. GEORGE M. LEWIS: In one instance pits were said to have appeared within two weeks. If the pits can appear so suddenly it should also be possible for them to disappear rapidly.

DR. HERMAN GOODMAN: If the evidence is that the pits disappear, do they vanish because the higher portions of the nail surface are reduced to the level of the depths of the pits or because the new nail surface raises the level of the pits to the surface of the nail? I doubt if the surface of the exposed nail can regenerate. I doubt if roentgen radiation can cause such regeneration. I wonder whether roentgen radiation can cause the disappearance of pitting from the surface of the nail at the site of exposure.

DR. FRANK C. COMBES: It is true that the pits disappear after irradiation. It is conceivable that this results from a leveling of the higher portions of the plate, possibly through an exfoliation, the nail being flattened. Dr. Goodman rightly said, the nail is dead tissue, and consequently it would be impossible for regeneration of the nail plate to occur.

DR. GEORGE M. LEWIS: Diseases such as syphilis should not be considered in this case. The discussion has brought out differences of opinion regarding the exact nature of this type of dystrophy of the nails. Roentgen therapy has proved successful in treating pitting of the nails in a number of cases, but I am unable to explain the rationale of this favorable response.

Chancre of the Finger. Presented by DR. MAX SCHEER.

A. R., a man aged 28, from the Mount Sinai Hospital has a lesion on the left index finger of four weeks' duration. His sexual partner was seen in the outpatient department with a secondary eruption on Oct. 26, 1936. Her Wassermann reaction was 4 plus. The patient was first seen on Nov. 2, 1936. He presented a brawny swelling of the terminal phalanx of the left index finger and a superficial ulceration extending around the base of the nail. The condition was not particularly painful. The epitrochlear gland and the axillary glands were enlarged. The patient complains of malaise and headache. The Wassermann reaction was 4 plus; the dark field examination gave positive results forty-eight hours after injection of a bismuth preparation. The patient states that he had no venereal infection before this. Today the condition is much more painful than it has been.

Report on a Case of Granuloma Annulare. DR. HERMANN FEIT.

M. O., a girl aged 3½ years, was presented at the meeting of the Section of Dermatology and Syphilis of the New York Academy of Medicine on Oct. 6, 1936, with a condition diagnosed as granuloma annulare and livedo racemosa (ARCH. DERMAT. & SYPH. to be published).

She has received ten treatments with an air-cooled quartz mercury vapor arc lamp over the entire body but no roentgen therapy and no arsenic medication. There has been considerable improvement.

Lupus Erythematosus Associated with Roentgen Ray Dermatitis of the Face (Epithelioma?). Presented by DR. MAX SCHEER.

Bromoderma. Presented by DR. ISADORE ROSEN.

Papulonecrotic Tuberculid. Presented by DR. JESSE A. TOLMACH.

Lupus Erythematosus. Presented by DR. LAIRD S. VAN DYCK.

Pyoderma Complicated by Nodular Bromoderma. Presented by DR. E. WILLIAM ABRAMOWITZ.

Tuberculosis Verrucosa Cutis. Presented by DR. EUGENE F. TRAUB.

Lichen Planus of the Lips and Skin. Presented by DR. ISADORE ROSEN.

CHICAGO DERMATOLOGICAL SOCIETY

MAX S. WIEN, M.D., *President*

Oct. 21, 1936

RUBEN NOMLAND, M.D., *Secretary*

Dermatitis Herpetiformis (?). Presented by DR. OLIVER S. ORMSBY.

This woman, aged 54, has a cutaneous eruption of two years' duration. The lesions have been limited to the region of the buttocks and involve chiefly the right side. Much of the intertriginous region has been involved, as have also the vaginal mucous membrane and, more recently, the mucous membrane of the tongue. The patient states that ten years ago a single group of lesions similar to the present ones developed at the base of the spine. These lesions soon cleared up, and no more appeared until two years ago.

The patient was first seen in January 1935, at which time there were several groups of vesicles on an inflammatory base situated on the buttocks and on the right hip. There was also marked intertriginous dermatitis. This type of eruption has recurred in crops for several months. Under comparatively simple treatment, which included internal administration of salicin, the condition cleared entirely in two months. Five months ago it recurred, and since then it has remained active. There has been practically no intermission, four or five areas showing an active process being constantly present. The involvement on each individual patch has run its course in two or three weeks. Intense pruritus and burning have been present both on the skin and on the mucous membrane.

On the right buttock there are two groups, each half the size of a palm, of ten or twelve deep tense vesicles situated on an inflamed base. A third group, with more superficial vesicles and a less inflamed base, is also present on this buttock. In the intertriginous region there is a general dermatitis with infiltration, and deep fissuring is noted at the bottom of the cleft. The left buttock shows relics of groups which recently presented the appearance aforementioned. The vaginal mucous membrane shows no change, but the patient complains bitterly of the burning and pruritus in this region.

On the left side of the tongue there is a large erosion covered with a yellow pellicle which has been present for about two months. The patient has recently had the teeth extracted because of pyorrhea. On the mucous membrane of the lower lip are two well defined gray areas and one pea-sized reddened area, neither of which is eroded.

Examination of the blood showed 8,350 leukocytes. The differential count gave the following results: polymorphonuclears, 69 per cent; large lymphocytes, 6 per cent; small lymphocytes, 16 per cent; eosinophils, 3 per cent; basophils, 1 per cent, and transitional cells, 2 per cent.

A roentgenogram of the chest reveals a tumor 10 cm. in diameter situated in the right pleural cavity, apparently originating in the hilus. This mass is demonstrable by physical signs as well as by the roentgenogram.

DISCUSSION

DR. DAVID LIEBERTHAL: I believe the question mark may be left out. The history and the appearance of the skin are, in my opinion, those of dermatitis herpetiformis.

DR. LESTER M. WIEDER, Milwaukee: I think the history of recurrence at the same sites of grouped vesicular lesions with associated pruritus and burning favors the diagnosis of dermatitis herpetiformis of restricted distribution.

DR. M. H. EBERT: My associates and I have observed at the Cook County Hospital a case of what we believe to be a localized dermatitis herpetiformis. The case was presented before this society at one of the meetings last spring (A

Case for Diagnosis [Dermatitis Herpetiformis?], ARCH. DERMAT. & SYPH. **35**:344 [Feb.] 1937). The lesions were more extensive than those in the case presented today, but they were limited to certain areas, and the herpetiform lesions were more numerous in the margins. The pruritus and burning were not as severe as in Dr. Ormsby's case. Fluid from the blisters as well as the blood showed high eosinophil counts. The patient, a woman, responded well to injections of a soluble extract from the anterior lobe of the pituitary gland, and she is almost free from lesions at present.

I think dermatitis herpetiformis limited to circumscribed areas is rare, but it does occur.

DR. S. W. BECKER: I wish to mention a case which my assoociates and I presented before this society three years ago (A Case for Diagnosis [Chronic Herpetiform Eruption], ARCH. DERMAT. & SYPH. **29**:478 [March] 1934), in which a large plaque, 20 or 30 cm. in diameter, was present across the back. The lesion was typical of dermatitis herpetiformis, and the consensus was in favor of that diagnosis. There were no lesions elsewhere.

DR. OLIVER S. ORMSBY: In view of the fact that I have observed many cases of recurrent herpes on the buttock, I tried for some time to keep this case in that category, but owing to the other findings, I had to conclude that the condition is probably localized dermatitis herpetiformis. As to the connection of the infection in the mouth with the eruption, positive statements cannot be made. The patient had severe pyorrhea and erosions in the mouth. In addition, the tumor in the chest is of interest, but I think that should be left alone. The infectious areas in the mouth have cleared up after removal of the teeth, but this as yet has had no effect on the cutaneous lesions.

Xanthoma Juvenile. Presented by DR. OLIVER S. ORMSBY.

This girl, aged 15 months, presents lesions which have a general distribution and which began on the right cheek when the patient was aged 3 weeks.

The lesions vary in size from that of a match head to that of the nail of a little finger and are oval or rounded, distinctly elevated yellow soft nodules or plaques. In general they are symmetrically placed, occurring throughout the scalp, on the entire face, including the eyelids, and on the neck, the trunk and the extremities, including the palms and soles. On the upper portion of the trunk the lesions are large and strikingly distinct. The surfaces of the lesions show the individual lines of the skin to an exaggerated degree. There is no familial history of diabetes or disorder of the liver.

DISCUSSION

DR. F. E. SENEAR: I think this is an interesting case, and I do not recall ever having seen a patient in whom xanthoma juvenile developed at so early an age. The case is of interest in contrast with those described by McDonagh under the title of nevoxantho-endothelioma. According to present opinion, these are instances not of endothelioma but of a special type of juvenile xanthoma, as Dr. Caro pointed out, differing from the type in this patient in the increased amount of inflammatory reaction and in the increased fibrosis. In the case of the type of nevoxantho-endothelioma, observed by Dr. Caro and me, the lesions were more tumor-like and elevated and presented a real nevoid appearance which is not present in this case. Dr. Montgomery may wish to say something about the cellular variations in the case he has under observation; these were present also in our case of "nevoxantho-endothelioma."

DR. HAMILTON MONTGOMERY, Rochester, Minn.: Dr. Ormsby's case of xanthoma juvenile is quite different from the case McDonagh reported as one of nevoxantho-endothelioma and from one which I presented recently at the Dermatological Conference of the Mississippi Valley (ARCH. DERMAT. & SYPH. **35**: 976 [May] 1937). Nevoxantho-endothelioma should be more properly designated as nevoxanthoma with endothelial proliferation, as one is not dealing

with a malignant tumor. The clinical appearance and course of the lesions are different from those in juvenile xanthoma. Nevoxantho-endothelioma has been confused in the beginning with other nevoid disturbances including urticaria pigmentosa. Dr. Ormsby's case was presented before this society at the meeting of January 1936. Dr. Finnerud and I both studied the sections, which showed ordinary xanthoma and presented none of the endothelial giant cells or endothelial proliferation that characterizes nevoxantho-endothelioma. Whereas the two conditions may be closely related, I think they must be kept separate for the time being. It is interesting that in Dr. Ormsby's case the chemical composition of the blood was normal except for a slight increase in the cholesterol and cholesterol ester contents. It is difficult to say much, however, on the basis of the single chemical analysis of the blood. It would have been interesting to make a chemical study of the contents of the tumor itself.

Dr. H. E. Michelson, Minneapolis: I was glad to hear Dr. Montgomery say that he prefers the term endothelial proliferation to endothelioma, because I think the name endothelioma implies a malignant process. I think the approach to the study of all cases of xanthoma should be general as well as local, and it requires a refined tinctorial technic to identify fats.

Dr. Clark W. Finnerud: Any one who is particularly interested in this clinical entity will find that it was described in full by Artz about fifteen years ago, under the title of juvenile xanthoma. The histologic specimens described in that report were almost identical with those in the case presented today.

Dr. Oliver S. Ormsby: I think it is well to note the differences between the two types of cases. In most of the recorded cases of the type depicted by McDonagh the lesions have undergone spontaneous involution, and the patients have recovered. In a case of the type I presented today this usually does not follow. Whether the lesions should all be classed as juvenile xanthoma I cannot say, for they differ both clinically and histologically. I think the term juvenile xanthoma means nothing more than that xanthoma begins in a patient before adolescence. However, when xanthoma of this type begins at the age of 3 weeks, the constitutional factors back of it are not the same as those present in adult patients; so in these patients there is some factor producing the disease which is probably different from that which is active in adults. I think further study is necessary, but I believe that for the present the type depicted by McDonagh and recently described by Drs. Senear and Caro should be considered as a separate or subgroup of juvenile xanthoma. In the early stages these lesions are pink, and only after some time do they assume a xanthomatous appearance clinically. Furthermore, the lesions disappear spontaneously, whereas in true xanthoma they usually do not.

A Case for Diagnosis (Tuberculid?). Presented by Dr. Clark W. Finnerud.

This woman, aged 59, was first seen by me two months ago, because of an eruption in the lumbosacral region, of two years' duration, which was devoid of subjective symptoms. She stated that the eruption began as an elevated red mark and slowly healed in some places while it enlarged peripherally. She has been married for thirty-four years; she has had no miscarriages and has two children living and well.

When I first saw her there were a palm-sized area of slightly atrophic skin in the left portion of the lumbosacral region and two dollar-sized similar areas to the right of this. There was also a group of three pea-sized nodules on the medial surface of the left leg. These patches were mottled red and white and were similar in appearance to the skin of the lower portion of the legs of persons who have a marked chilblain type of circulation. On the periphery of the patches and especially on the large patch, were numerous superficial nodules which on pressure with the diascope lost practically all their color.

The Wassermann and Kahn tests of the blood gave negative results. The patient was given several injections of neoarsphenamine and bismuth, and in the

course of less than three weeks the nodules almost entirely disappeared, although the general color of the involved areas remained unchanged. Recent Wassermann and Kahn tests again gave negative results.

Histologic study of a specimen from the border of the left patch, at the site of a previous superficial nodule, revealed perivascular and periglandular cellular infiltration consisting chiefly of lymphocytes and epithelioid cells. A few giant cells were demonstrable in some of these nests, most of them being of the Langhans type. The connective tissue of the upper portion of the corium showed questionable sclerosis in some of the sections. The elastic tissue was largely destroyed in the areas of cellular infiltration. The walls of the blood vessels showed little thickening. The epidermis was atrophic, the atrophy being most marked in the areas where the nests of infiltrating cells were located in the superficial portion of the corium.

DISCUSSION

DR. E. A. OLIVER: I should be inclined to call this condition syphilis rather than sarcoid, although it does not resemble either. The fact that the lesion has responded well to antisyphilitic therapy would make me lean to the belief that the condition is syphilis rather than sarcoid.

DR. M. H. EBERT: I got the impression that the residue seen today resembled livedo reticularis, the type of lesion that is present sometimes when there are changes in the deep-seated vessels. I believe if sections were taken from points as far down as the fascia, Dr. Finnerud would note changes in the deep-seated vessels that would account for the changes seen in the patient.

DR. HAMILTON MONTGOMERY, Rochester, Minn.: The section showed definite epithelioid tubercles with little evidence of caseation—in other words, a sarcoid-like picture. The histologic changes do not correspond to a tuberculoid syphiloderm, and there is no evidence of syphilitic changes in the peripheral vessels or any infiltrate of plasma cells. It is interesting to note the localized area of atrophy and telangiectasia present in this case, in view of the case of cutaneous tuberculosis recently presented at the Mayo Clinic in which there were generalized atrophy and telangiectasia of the skin, simulating somewhat a picture of poikiloderma or idiopathic atrophy. It is unusual to see such a prompt response to antisyphilitic therapy in a lesion of tuberculosis. I have previously not been familiar with the picture of cutaneous tuberculosis which on involution results in localized or generalized atrophy with telangiectasia.

DR. CLARK W. FINNERUD: Since I heard the discussion I have become more impressed with the possibility that the condition in question is a tuberculid than I was formerly. The response to antisyphilitic therapy, I think, was remarkable. My associates and I certainly would not have expected so rapid a response from tuberculosis, in spite of the fact that the arsphenamines are of some assistance in that disease. I think that because of the features Dr. Montgomery mentions the condition is most likely to be some form of tuberculosis.

A Case for Diagnosis (Lymphoblastoma?). Presented by DR. E. A. OLIVER and DR. W. W. TOBIN (by invitation).

This woman, aged 44, presents numerous discrete pinhead-sized red papules on the face, neck, chest and back, and about the ears there are many firm yellow nodules varying in size from that of a pea to that of a walnut. She states that fourteen months ago red pruritic spots appeared all over her face and neck and that since then similar spots have appeared on the chest and upper portion of the back. Six months ago yellow nodules appeared about the ears. These have slowly enlarged.

Physical examination indicated nothing abnormal. The results of the Wassermann test were negative. Repeated examinations of the blood showed anemia with leukopenia and no relative increase in the number of lymphocytes. The last examination of the blood showed 3,930,000 erythrocytes, 3,940 leukocytes and 65

per cent hemoglobin. The differential cell count gave the following results: polymorphonuclears, 66 per cent; lymphocytes, 29 per cent; eosinophils, 2 per cent, and monocytes, 3 per cent.

Histologic examination of a nodular lesion showed a thinning of the epithelium with a massive infiltrate in the corium of small lymphocytes lying in a fine reticular connective tissue. There was an occasional plasma cell. The blood vessels and lymph spaces were markedly dilated.

DISCUSSION

DR. RUBEN NOMLAND: During the last four or five years, I think, there have been at the Rush Medical School several patients who have presented localized infiltrations in the skin which were red but not especially inflammatory. On histologic examination these proved to be collections of lymphocytes, apparently neoblastic rather than inflammatory. The provisional diagnosis of localized leukemic nodules in the skin has been made, but so far as I know this has been unsatisfactory because the nodules showed no evidence of leukemia. Recently this disease has been described elsewhere under the name of lymphocytoma of the skin (Epstein, S.: Lymphocytome der Haut mit Beteiligung der Conjunctiva bulbi, *Arch. f. Dermat. u. Syph.* **173**:181 [Oct.] 1935). Two types have been described: (1) one in which the lesions were limited to a small area and were elevated and nodular but on microscopic study showed infiltration of lymphocytes apparently neoblastic in origin, and (2) a disseminated papular type. I think the disease should be classified as a benign type of new growth and separated from leukemic nodules in the skin occurring in aleukemic leukemia, for patients with that condition do not have leukemia.

DR. FREDERICK R. SCHMIDT: I think the term lymphoblastoma as used by Wile to designate this disease would fit here. Many years ago Kundrath described aleukemic changes in the blood in lymphoblastoma. Recently Riehl described a case in which there was an eruption much like that seen in this patient. The disease was diagnosed as leukemia during the life of the patient. At autopsy all the organs of the body showed lymphosarcoma. To show that a like change can occur in the other direction, I may state that I have a patient who had a small tumor of the nose, which was removed and diagnosed as lymphosarcoma. Several months later several soft nodules appeared, as in this case, all over the body. The diagnosis of several of the cutaneous lesions, made by the competent pathologist who examined the first lesion, was leukemia. In other words, if one believes that all the diseases grouped under the term lymphoblastoma have the same cellular origin, one may readily see that all forms are possible histologically and that mutation can occur.

Leiomyoma Cutis. Presented by DR. RUBEN NOMLAND.

This man, aged 23, presents a lesion on the left arm which, his mother states, was present at birth. Other lesions appeared early in life and during childhood and adolescence. These lesions have enlarged slowly, the large plaque on the arm being most troublesome. Within the past two years intensive spasms of pain lasting fifteen minutes have occurred in this lesion, either spontaneously or after slight or severa trauma.

The patient is well developed; on the skin of the upper, outer part of his arm he presents an irregular plaque, 10 by 8 cm., composed of fused hemispheric and elongated nodules. The lesion is of the color of normal skin and firm. Scattered over the forearms, being more numerous on the flexor surfaces and less so on the upper parts of the arms and on the chest, face and back, are red and pink small round and oat-shaped papules that seem to be connected chiefly with the pilosebaceous orifices. Occasionally larger lesions, 1 cm. or more in length, are seen in these areas.

Histologic examination of the plaque revealed interlacing bands of smooth muscle forming a tumor extending from just beneath a normal epidermis to the fat layer

of the cutis. The origin of the smooth muscle could not be determined, but it seemed more likely to arise from the erectores pilorum than from the blood vessels, which were normal.

DISCUSSION

DR. OTTO H. FOERSTER, Milwaukee: I think this is the most unusual and widespread instance of leiomyoma cutis that has been presented before this society. The characteristic shape of the individual lesion, that of a grain of barley, seen frequently in cases in which there is a more sparse distribution of lesions, is indicated only here and there in this case.

A Case for Diagnosis (Atrophic Melanotic Plaques?). Presented by DR. S. W. BECKER and DR. M. E. OBERMAYER.

This girl, aged 21, states that four years ago brownish macules appeared on the forearms. Since then similar lesions have appeared on other parts of the body, and all have increased in size. There have never been any subjective symptoms.

Scattered over the forearms, the upper portion of the back, the thighs and the thorax are many hyperpigmented slightly atrophic plaques, 7 or 8 cm. in diameter, some of which have a lilac-red border.

A histologic section is presented. It reveals a loose and thickened stratum corneum. The remainder of the epithelium is thin, and the papillae are not prominent. An increase of melanin is present throughout the basal layer, with few dendritic melanoblasts. The superficial portion of the cutis shows minimal round cell infiltration. The connective tissue deep in the cutis is rather poor in cells.

DISCUSSION

DR. LESTER M. WIEDER, Milwaukee: I did not see the sections but thought that clinically most of the lesions resembled circumscribed scleroderma, with bandlike lesions over the groins and hips.

DR. S. W. BECKER: The point of interest is that the lesions start as pigmented macules, and the earliest lesions the patient was able to show us were pigmented, with no infiltration and no particular atrophy. The violaceous border suggests, of course, morphea, but the lesions we have seen have not exhibited the fibrotic change that occurs in any type of scleroderma. This case reminds me of that reported by S. M. Peck and M. Kartagener (Über einen eigentümlichen, zum Teil segmentär und halbseitig angeordneten Fall von progedienter Atrophie der Haut und der Muskeln mit Pigmentverschiebung, *Dermat. Ztschr.* **52**:81-94, 1928). The patient was a Swiss soldier who had pigmented atrophic plaques. The author's conclusion was that the lesion was due to some nervous influence, and that was the only conclusion we could reach in our case.

Idiopathic Atrophy (Diffuse) of the Skin. Presented by DR. HARRY M. HEDGE.

This Swedish woman, aged 63, was admitted to the hospital in July 1936 because of an enlarged thyroid. On admission the condition of her skin was noted, and she was temporarily referred to the dermatologic service. Her chief complaints are that she has suffered from tremor of the hands for five years and from discoloration and pruritus of the extremities since the age of 24. During the past five years she has been markedly short of breath and has noted attendant palpitation; she has also had excessive perspiration for many years. Early in the development of the discoloration she noted that the veins had become much more prominent, but she suffered no particular discomfort on that account. At one time she had marked edema of the lower extremities, with other signs of cardiac involvement. During her entire life she has had frequent attacks of sore throat and colds. In 1917 a pelvic tumor, the character of which was not described, was removed. This operation was followed by her menopause. She has had 7 children, 5 of whom are living and well. She had 2 miscarriages three months after conception.

Physical examination showed the patient to be somewhat below normal weight. The throat was slightly injected; the thyroid was palpable. The lungs and heart showed no marked abnormalities. The reflexes were normal and not increased.

The Wassermann and Kahn tests and the urinalysis gave negative results. Examination of the blood showed 4,490,000 erythrocytes and 6,400 leukocytes. The differential cell count gave the following results: polymorphonuclears, 60 per cent; large lymphocytes, 9 per cent; small lymphocytes, 15 per cent; monocytes, 5 per cent, and eosinophils, 11 per cent. Chemical analysis of the blood gave the following results: urea nitrogen, 15.41 mg.; nonprotein nitrogen, 31.26 mg.; sugar, 91.7 mg., and cholesterol, 155.3 mg., per hundred cubic centimeters. The albumin content of the serum was 3.19 per cent and the globulin content 3.18 per cent. The alkali reserve was 58.6 per cent and the urea clearance was 105 per cent of the average normal function (76 cc. of blood cleared of urea per minute). The bromsulphalein test revealed 4 per cent retention of dye after thirty minutes. The basal metabolic rate was from + 57 to + 60 per cent.

A roentgenogram of the chest revealed enlargement of the heart by about 20 per cent, some increase in bronchial markings from passive congestion and a calcified area in the upper part of the left lung.

The patient's thyroid gland was removed on July 28, 1936, and a normal and uneventful recovery followed this operation.

At present there is a generalized atrophy of the skin, particularly of that of the arms and legs. The condition has not changed materially during the past ten years, but a slight improvement has occurred on the trunk since the thyroidectomy was performed.

DISCUSSION

DR. H. E. MICHELSON, Minneapolis: One interesting point in this case is that the patient was born in Sweden. I have not observed a case of idiopathic atrophy in a native American, and geographic distribution seems to play a rôle in the pathogenesis of this disease.

DR. S. W. BECKER: When I was in Strasbourg, France, some years ago Pautrier made some interesting remarks. Acrodermatitis chronica atrophicans is almost never seen in Paris, France, and when Pautrier went to Strasbourg he was surprised at the number of cases of this condition he observed. Those of the members who follow the French literature may have noticed that he has reported all these cases in detail and has numbered them and studied them intensively. I asked him why he thought this condition was so rare in Paris and so common in Strasbourg, and he said there were many persons with thyroid disturbance in Strasbourg and he thought that disease of the thyroid had some connection with the condition. So far as I know, all the patients with the disease seen in the United States have been born in Europe.

DR. M. E. OBERMAYER: My own experience in Austria confirms Dr. Becker's statement, and I wonder whether the frequent occurrence of acrodermatitis atrophicans in the goiter-infested province of Styria might not be explained on the same basis.

DR. R. R. SULLIVAN, Rochester, Minn. (by invitation): For two years I have been interested in studying acrodermatitis chronica atrophicans, of which this case is a typical example. I have reviewed the European and American literature, including the cases presented before meetings of American dermatologic societies, for the purpose of making a comparative study. In answer to the question as to whether the condition occurs in American-born persons, I wish to say that an analysis of 145 cases presented before dermatologic societies in this country between 1889 and 1936 shows that in only 4 were the patients born in America; in 65 they were born in Germany, Ireland, Russia, Sweden, Norway, Austria, Finland, Italy, Lithuania, Poland and Czechoslovakia. In 76 cases no information was given as to birthplace, and I believe that if this information were obtained in all cases, there would be many more persons in the American-born group. Of the 27 additional cases of this disease observed at the Mayo Clinic between 1916 and 1936

9 were in American-born persons, 1 was in a Canadian, 1 was in a Mexican and 14 were in Europeans. In 2 cases the information as to birthplace was not available.

There is a question also as to whether the scleroderma-like process on the lower portion of the legs, so well illustrated in this case, is in any way related to scleroderma. I am convinced from a study of cases at the clinic, and from a review of those in the literature that this is only a pseudosclerodermatous process definitely distinguishable from true scleroderma.

Finally, there is the question of etiology, especially as it is related to the endocrine system. So far as I can make out, there is no unanimity of opinion or theory. Practically every gland of internal secretion has been involved according to those studying the disease, but no one has brought out any convincing evidence to show a true relationship. Furthermore, an analysis of the individual cases and of large groups shows that everything that has been used in the way of glandular or endocrine therapy has been without significant results.

DR. HARRY M. HEDGE: This woman has undergone a thyroidectomy and she has had tachycardia related partly to the thyroid and partly to adrenal stimulation. She has had an ovarian cyst and fibroids of the uterus. Otherwise the history is irrelevant. Since the thyroidectomy was performed some months ago there has been some improvement in the lesions over the trunk, but not much change in those over the extremities has been noted as yet.

Cutaneous Leprosy in an American-Born Patient. Presented by DR. M. H. EBERT and DR. B. B. BEESON.

This woman, aged 30, was born on a farm in Kansas, was removed to Chicago when 3 weeks old and lived here until she reached the age of 4 years, when the family moved back to a farm in Kansas. She remained there until she was 10 years old and then returned to Chicago and has lived here or in the suburbs ever since. Her father was an American of German descent; her mother was born in Virginia of American stock. No intimate contacts with Orientals or Mexicans can be discovered, except that at one time she delivered milk to a Mexican family for ten days. She was married to a "Yankee" when she was 20 years old and has 2 children, a boy aged 8 years and a girl aged 5 years. There is no history of a miscarriage.

She states that fifteen years ago she burned her right elbow severely. Six months later painless blisters appeared on her right forearm, some of which were followed by depigmentation. Similar blisters recurred on the arms at irregular intervals until four years ago. About six years ago a group of painless bluish red nodules appeared above the ankles after the patient sustained an automobile accident in which her legs were injured. These nodules have persisted, and new ones have appeared in the past year. Nodules appeared on the chin about four and a half years ago and gradually spread over the face. During the past three years she became hoarse; arthritic pains, chills and fever and malaise developed, and the patient was ill for several months. She has gradually lost weight; her greatest weight was 243 pounds (110.2 Kg.) but when admitted to the hospital she weighed 160 pounds (72.6 Kg.). She has been more or less miserable for the past three years and at times has felt ill enough to remain in bed.

She was given antisyphilitic treatment at one of the city dispensaries for three years because of a persistently positive Wassermann reaction and the cutaneous lesions.

There is a fairly diffuse bluish red nodular infiltrate of the face, giving a typical leonine appearance. The eyebrows and eyelashes have fallen. There are hazelnut-sized nodules in the lobes of the ears. The lower third of each leg, especially on the posterior portion, shows brownish red, infiltrated subcutaneous plaques of the type and size seen in erythema induratum. Indefinite bluish red macules are noted on the forearms, and there is a dollar-sized depigmented macule on the right forearm. There is marked disturbance of sensations of touch, pain, heat and cold in the arms and hands, and a similar but less marked disturbance

is present in the feet. There is some atrophy of the interosseous muscles of the hands, and the skin of the fingers looks shiny and thin.

The Wassermann and Kahn tests gave strongly positive reactions. Large numbers of acid-fast bacilli were observed in nasal smears.

Since August 1 the patient has received intramuscular injections of esters of chaulmoogra oil twice a week, and definite improvement has resulted. She has been on a diet high in calories and vitamins.

Histologic examination of a lesion from the leg showed that the entire thickness of the corium, with the exception of a narrow band beneath the epidermis, was infiltrated with irregular focal accumulations of connective tissue cells, reticulocytes of various shapes and sizes, a few lymphocytes and an occasional plasma cell. A section stained with Ziehl-Neelsen stain disclosed enormous numbers of acid-fast bacilli throughout the corium.

DISCUSSION

DR. M. E. OBERMAYER: While I was in Mexico this summer, my attention was drawn to a manifestation of neural leprosy with which I was not familiar, namely, large purpuric macules which represent the sites of subsequent ulcerations and which are intensified by treatment.

DR. E. A. OLIVER: I think it is interesting that this is one of the few cases of leprosy in American-born patients ever presented here. Some years ago I presented a boy with neural leprosy who had been born in Louisiana, but such cases are not at all common.

DR. HAMILTON MONTGOMERY, Rochester, Minn.: Several of the patients with leprosy whom my co-workers and I observed have been born in this country and had never left it or lived in any of the cities on the coasts, where they might have been exposed to the disease.

DR. TIBOR BENEDEK (by invitation): Was a salt-free diet used in this case? I want to call the attention of the members to the successful administration of the salt-free diet of Gerson and Herrmannsdorfer in leprosy. Dr. E. Keil, who for many years was in charge of the Leprosy Hospital at Paramaribo, Dutch Guiana, South America, used the salt-free diet of Gerson and Herrmannsdorfer with great success in connection with treatment consisting of iodine and of a preparation of chaulmoogra oil (*Arch. f. Schiffs- u. Tropen-Hyg.* **39**:188-189 [May] 1935).

DR. M. H. EBERT: I think this case is more interesting from the epidemiological than from the dermatologic point of view. We have made some attempts to discover possible sources of infection but have been unable to find any. Perhaps further study will disclose some. As to the salt-free diet, I think it is a good suggestion. Splendid results have been reported from it in tuberculosis, and it might help in this case. On the other hand, it might destroy the patient's appetite unless she has some good substitute for the salt. My understanding is that patients with this condition must have a diet high in calories.

Epithelioma of the Lip (Unusual Response to Roentgen Therapy). Presented by DR. JAMES H. MITCHELL.

This man, aged 69, was first seen on April 29, 1936, because of a lesion of about eighteen months' duration. He has been a pipe and cigar smoker since childhood. An undetermined amount of treatment with radium was given for some months before he came under observation, but no result of any kind was apparent to the patient.

A tumor involves the entire lower lip. It is hard throughout, and a fungating mass is present to the left of the midline. The buccal mucosa is much eroded. There are marked interference with speech and mastication and a constant drooling. One marble-sized gland is present in the left submaxillary region about midway from the chin to the angle of the jaw.

The Wassermann test gave negative results. Routine examination of the blood gave normal results.

A total of 5,600 roentgens filtered through 1 mm. of aluminum was given to the lip. Additional treatment was given to each side of the neck. The last treatment was given on July 22, 1936.

The patient is free from any demonstrable indication of activity of the epithelioma and from radiodermatitis.

DISCUSSION

DR. LESTER M. WIEDER, Milwaukee: The clinical results in this case are striking, and the fact that treatment with roentgen radiation was effective when radium had failed is interesting.

DR. L. F. WEBER: I wish to ask for an explanation as to why the roentgen radiation would give good results when radium failed.

DR. OLIVER S. ORMSBY: Did Dr. Mitchell determine whether the process started on the mucous membrane of the lip or on the skin?

DR. JAMES H. MITCHELL: I am presenting this case with more or less apology because I have performed no histologic examination and also because at the meeting of the American Medical Association in May and that of the American Dermatological Association in June papers were presented on the treatment of epithelioma of the lip. The discussions seemed to indicate that nothing short of radical treatment would cure the lesions. I was surprised at the response in this case, and that is why I presented the patient. As to the radium therapy which he received before I saw him, I know nothing about it except that the patient said he had some treatment with radium, and so far as he could determine there was no result.

As to the origin of the growth, I have no way of determining that at all; all I can say is that the skin of the lip was not involved. When I first saw the patient the mass was so huge that I apologized to the physician who referred him for making any attempt at treating it; I said that I should do the best I could and that if within a reasonable time there was no response I should report to him and he could refer the patient to a surgeon. This is the largest growth I have seen that has responded favorably. I have the record of another case, with photographs, in which the growth was perhaps one-third the size of this. Whether it is a temporary result or not I do not know, but it shows that dermatologists can treat such tumors successfully.

DR. OLIVER S. ORMSBY: My reason for inquiring as to the point of origin of the tumor lies in the fact that as a rule when these lesions begin on the mucous membrane they are prickle cell growths which are radioresistant, whereas if they begin on the skin they are of the basal cell type and are radiosensitive.

DR. JAMES H. MITCHELL: The whole activity was on the buccal mucosa, and the outside was almost entirely uninvolved. If I can say anything at all, it is that the tumor was a prickle cell growth arising on the mucosa and not involving the outside.

I did not use the Coutard method. The patient lives in Aurora, Ill., and came in once a week. He received no other treatment of any kind. Seven hundred roentgens at weekly intervals filtered through 1 mm. of aluminum was given.

Hemangiolymphangioma. Presented by DR. E. A. OLIVER and DR. F. J. KENDRICK, Gary, Ind. (by invitation).

This boy, aged 12 years, presents an elevated lesion in the central part of the dorsum of the tongue, which developed seven years ago after some sort of acute inflammation of the tongue.

The lesion appears to consist chiefly of lymphangiomatous elements.

DISCUSSION

DR. E. A. OLIVER: This case is presented by Dr. Kendrick to show a rather unusual lesion on the tongue. Suggestions as to treatment are requested. I do not know what the members think about treatment of these lesions, but my

co-workers and I have obtained excellent results by embedding radon seeds in this type of lesion, and I have suggested to Dr. Kendrick that this method be employed in this case.

Multiple Benign Cystic Epithelioma. Presented by Dr. Clark W. Finnerud and Dr. W. W. Tobin (by invitation).

This woman, aged 25, presents numerous symmetrical, discrete firm yellow papules and nodules over the entire face and scattered lesions on the scalp and neck which first appeared when the patient was 9 years old and have since remained stationary. There are no subjective symptoms. The family history is irrelevant. Several lesions have been removed by electrodesiccation but have recurred.

Histologic examination of one of the nodules revealed epithelial growths of basal cells in the corium in the form of irregular columnar and round masses with an outer row of deeper-staining palisade cells and the presence of many cystic spaces.

DISCUSSION

Dr. Hamilton Montgomery, Rochester, Minn.: The histologic picture is typical of a multiple benign cystic epithelioma. It is not one of the mixed types in which the histologic changes of syringoma and adenoma sebaceum are also seen.

Dr. Frederick R. Schmidt: I think that the rest of the body should also be examined for benign cystic epitheliomas. Some time ago I saw a woman who had little tumors of this type on the face and on the vulva. Sections from both areas were identical in structure. I think that this is not unexpected, for thirty years ago a veterinarian pointed out that in animals, at least, the primary epithelial germ cell is the parent cell of the sebaceous gland, hair follicle and apocrine gland. So it might be expected that syringocystadenoma and benign cystic epithelioma would occur wherever there are apocrine glands.

A Case for Diagnosis (Vitiligo? Atrophic Lichen Planus?). Presented by Dr. S. W. Becker and Dr. M. E. Obermayer.

This girl, aged 10 years, was first seen in May 1936, when she stated that depigmented lesions had developed on the neck over a period of six or seven weeks. Similar lesions appeared in the groin and axillae, over the flexor surfaces of the knees, on the wrists, along the lumbar portion of the spine and on the inner aspects of both thighs. Spina bifida occulta is present. The patient has become so weak that she can scarcely walk up and down stairs, and loss of appetite and generalized bodily aching have developed. Five years ago she was struck by an automobile and suffered a fracture of the skull which necessitated an operation for decompression. Since that time she has complained of headaches.

Examination in the pediatric department showed her to be well nourished, well developed and not acutely ill. No physical abnormality was noted. The reflexes were somewhat exaggerated.

Over the various areas of the body mentioned are oval depigmented plaques. Those on the neck show a slightly erythematous elevated, threadlike border.

A histologic section of the border of a lesion showed an inflammatory reaction in a limited region. The stratum corneum was thickened and loose. The stratum granulosum was thin. The stratum mucosum showed rather intense intercellular edema, especially in the basal portion. The epithelium was infiltrated with some round cells. The papillae were broad and showed considerable edema localized to the dermal-epidermal junction. A diffuse perivascular infiltrate of round cells which extended in lesser degree deep into the dermis was noted.

DISCUSSION

Dr. Clark W. Finnerud: I think the condition is vitiligo. The threadlike inflammatory border at the junction of the pigmented and depigmented areas is certainly unusual, but if fungi have been absolutely ruled out, I think vitiligo is the diagnosis. It is a clinical picture which I have never encountered.

DR. S. W. BECKER: As to the peculiar threadlike inflammatory border, we have searched through the literature and have found only 1 case in which the condition may be identical with that of this patient (Habermann, R.: Paratypische Pigment-Anomalien, in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1933, vol. 4, p. 2. [Illustrations are given.]). Some of the men who have written about vitiligo, Ganz for instance, stated that there may be a subthreshold inflammatory reaction. Gougerot said that it is always due to a subinflammatory reaction, but it may be that in this child there is sufficient inflammatory reaction to produce a real border.

A Case for Diagnosis (Pseudoleukemia?). Presented by DR. S. W. BECKER and DR. M. E. OBERMAYER.

This youth, aged 19, in the summer of 1935, noticed an oval depigmented and rough plaque from 7 to 8 cm. in diameter on the flexor surface of the left elbow. Shortly afterward a number of similar areas, varying from 2 to 5 cm. in diameter, appeared on the back. There was loss of hair in these areas. The only subjective symptom was mild pruritus. In March 1936 he noticed an erythematous scaly elevated plaque 3 cm. in diameter above the right eyebrow. During the past few months the depigmented hairless plaques on the back have become smaller and the hair has partially regrown. The plaque on the forehead has extended in a medial and upward direction.

Physical examination gave essentially negative results. Over the back are oval plaques, from 2 to 5 cm. in diameter, with comparatively normal skin containing short hairs. Over the right eyebrow is a medium red infiltrated and elevated plaque 5 cm. in diameter. The outer third of each eyebrow is thin.

The Kolmer and Kahn tests of the blood serum gave negative results. Examination of the blood showed 5,400,000 erythrocytes, 7,400 leukocytes and 90 per cent hemoglobin. The differential cell count gave the following results: polymorphonuclears, 35 per cent; large lymphocytes, 7 per cent; small lymphocytes, 50 per cent; monocytes, 6 per cent; eosinophils, 1 per cent, and basophils, 1 per cent. Nasal smears and specimens of mucous membrane removed by curetting showed no acid-fast bacilli.

Histologic examination showed that the epithelium was not particularly changed. Superficial vessels were dilated and surrounded by a moderate round cell infiltrate. Deeper in the cutis there were masses of epithelioid cells localized about the blood vessels and glands, along with occasional small areas showing necrosis.

DISCUSSION

DR. HAMILTON MONTGOMERY, Rochester, Minn.: The histologic picture shows no evidence of leukemia, but it may be consistent with a nonspecific stage of a sarcoid, which diagnosis I should favor on clinical grounds.

DR. S. W. BECKER: When this patient was first seen he had only the lesions on his back; there was no erythema, but there was a slight roughening of the skin, and for lack of anything better we made a tentative diagnosis of morphea. Some months later he returned with a plaque on the forehead which was uniform and did not show the extending border which it presents today. I questioned him in an effort to discover whether the lesions on the back might have been similar, but he was unable to give any information. The diagnosis of pseudoleukemia is suggested because of relative lymphocytosis of the blood. I think the patient must have two conditions, the one on the back and the sarcoid lesion on the forehead. We feel that we have ruled out leprosy.

Scrofuloderma with Osteitis Tuberculosa Cystica Multiplex. Presented by DR. A. W. STILLIANS and DR. E. M. SMITH JR. (by invitation).

This man, aged 22, was seen at the medical dispensary of the Northwestern University on Nov. 16, 1934, because of a slowly progressive eruption which was

said to have appeared when he was about 1 year old. The lesions had left extensive scars, tags of skin and dermal bridges and were still active in the dependent portions of the areas involved. The lesions were extensive and distributed widely over the body.

Examination showed only about 10 per cent of any one lesion in an active state, with crusted verrucous elevations and considerable purulent discharge. A large swelling of two weeks' duration was noted on the inner side of the right ankle. This lesion was about 3 inches (7.5 cm.) in diameter and 1 inch (2.5 cm.) high, had a necrotic center and was not particularly painful.

Treatment consisted of excision of the active portions of the multiple cutaneous lesions, excepting the one on the ankle. This lesion responded rapidly to intradermal injections of Besredka's antigen, local ultraviolet irradiation and mild antiseptic applications. By June 1935, the patient was free from all active lesions and had gained 20 pounds (9.1 kg.).

On Aug. 4, 1936, the patient returned with another lesion in the same location, 3 inches (7.5 cm.) in diameter and 1 inch (2.5 cm.) high, involving the skin and subcutaneous tissues, and with a large central area of necrosis but doubtful involvement of the bone.

He was given seven injections of foreign protein and ultraviolet irradiation locally. Involution of the lesion occurred promptly, leaving a discharging sinus. Six days ago the ankle began to swell and became moderately painful. A roentgenogram revealed several irregular cystic areas involving the medullary portion of the lower end of the tibia, without involvement of the joint. No involvement of other bones was noted. There is no pulmonary tuberculosis. The condition is not the usual pyogenic osteomyelitis.

Histologic examination revealed focal degeneration in the cutis with epithelioid infiltration. There were some giant cells but no bacilli.

Erythema Multiforme Bullosum. Presented by DR. OLIVER S. ORMSBY.

This man, aged 66, presents lesions which began fourteen months ago. He has had psoriasis for many years and was presented before the society at the meeting of November 1935 (ARCH. DERMAT. & SYPH., **33**: 1081 [June] 1936). At that time there were numerous bluish red plaques ranging in size from that of a coin to that of a palm and larger, the margins of some of which were elevated and infiltrated. On the thighs were a large number of bullae, some of which were present in the margins of the lesions on the trunk. There was extreme pruritus. The only significant change in the blood was an increase in the number of eosinophils, the percentage of which was 9. In the discussion the diagnoses of bullous erythema multiforme, dermatitis herpetiformis and possible phenolphthalein eruption were mentioned.

The progress of the condition during the next several months was unusual in that in certain exacerbations bullae were abundant while in others none was present. At one time the patient showed a general erythroderma. In the last recurrence, in June 1936, the symptoms were practically typical of multiform erythema. Treatment has consisted of intravenous injections of calcium and application of lotions and ointments to overcome the severe pruritus.

There has been no manifestation of the disease during the last two months. At present the skin is normal except for two patches of psoriasis about the elbow.

Histologic specimens are presented.

The progress of the disease, with its complete remission at present together with the results of histologic study, places it in the category of multiform erythema.

DISCUSSION

DR. DAVID LIEBERTHAL: I wish to compliment Dr. Ormsby on the caution with which the diagnosis was made. The only thing I have to add is that I was much pleased to see the wonderful therapeutic result obtained.

Melanosarcoma of the Orbit with Cutaneous and Visceral Metastases. Presented by DR. MAX S. WIEN, DR. E. L. MURPHY (by invitation) and DR. A. SLEPYAN.

This man, aged 67, who had trachoma forty years ago, first noticed defective vision in his right eye three years ago. The condition became progressively worse; a tumor of the orbit developed, and the eye was removed two years ago. Examination revealed a melanosarcoma of the orbit.

Four months ago the patient first noted a firm lump on his back, and since that time new lesions have appeared on the trunk and extremities; at present they develop at the rate of two or three per week. Recently the patient has been growing progressively weaker and has had anorexia and associated constipation. He has lost about 12 pounds (5.44 Kg.) during the past four months.

The skin of his trunk is the site of numerous symmetrically disseminated firm round discrete subcutaneous nodules varying in size from that of a bean to that of an English walnut. Abdominal examination revealed a mass in the upper portion of the abdomen, enlargement of the liver and bulging in the right upper abdominal quadrant.

Histologic examination of the subcutaneous nodule from the right pectoral region revealed a metastatic melanosarcoma.

DISCUSSION

DR. MAX S. WIEN: The disseminated metastases in the skin present an interesting clinical picture. We have observed other cases of metastatic malignant disease at the Cook County Hospital. In 1931 we presented before the society a patient with cutaneous lesions resembling these that were secondary to a primary carcinoma in a bronchus (ARCH. DERMAT. & SYPH. **25:** 162 [Jan.] 1932).

In this case we are dealing with a melanosarcoma secondary to a melanosarcoma of the eye. The patient presents a mass in the upper portion of the abdomen and enlargement of the liver, which is, no doubt, dependent on metastatic involvement of the liver. We wished to present today another case of this type of involvement in which there is a mass in the upper portion of the abdomen, but the patient was operated on for trigeminal neuralgia this morning and could not be presented.

NOTE: The patient died, and at autopsy in addition to the melanoblastoma invading the left orbit, the maxillary sinus and the left anterior, middle and cranial fossae extensive hepatic metastases were noted.

Madura Foot. Presented by DR. M. H. EBERT and DR. E. L. MURPHY (by invitation).

This Negro, aged 34, states that in January 1936 he stepped on a sharp object which penetrated his shoe and injured the right foot near the first metatarsalphalangeal articulation. After several weeks a painless nodule developed, which was followed after an interval of several weeks by multiple nodules, which broke down and discharged a small amount of purulent material. In June 1936 he was admitted to the dermatologic clinic of the Cook County Hospital, where a diagnosis of an impetiginous ringworm was considered but not verified microscopically. After six weeks of treatment consisting of soaking in a solution of potassium permanganate, which brought no relief, the patient was admitted to the hospital for observation. He stated that he had had a primary chancre.

Physical examination gave essentially negative results except for the lesion on the right foot. On the plantar surface of this foot was a group of sinuses, most of which were covered by a crust. These sinuses led to deep abscesses. The foot was nearly twice the size of the left one, and a few lesions similar to those on the plantar were seen on the dorsal surface near the webs of the first and second toes.

The Wassermann and Kahn tests gave 4 plus reactions, and a diagnosis of tertiary syphilis was made. A series of eighteen mercuric inunctions and large doses of potassium iodide brought no improvement in the condition of the foot

but reduced the swelling. The patient was then given ten injections of neoarsphenamine and ten intramuscular injections of a bismuth preparation, but no improvement occurred.

Histologic examination showed marked thickening of the epithelium and fibrosis but no changes suggestive of syphilis. Dr. Virginia Fisher, of the University of Illinois, took material from one of the lesions and on a 6 per cent concentration of honey agar grew a colony of organisms which she has identified as Monospermium, a piospermium of the genus Monospermium, a parasite which has been isolated from other cases of Madura foot.

DISCUSSION

DR. OTTO H. FOERSTER, Milwaukee: The clinical features in this case are so striking that the diagnosis of Madura foot presents itself at once. Not all such infections involve the foot, and I recall an unusual instance of a maduromycosis in which the condition involved the cheek, neck and arm. The patient was a young woman born and reared in the state of New York who acquired the disease at about the age of 10 years. I saw her when she was a student at the University of Wisconsin, and the clinical diagnosis of maduromycosis was verified by culture.

DR. M. H. EBERT: This man has been in Chicago for twelve years, and this lesion is of only one year's duration, so the disease was probably contracted here. This is the second case presented today exemplifying that one should not leap to conclusions because of serologic observations. This man had positive Wassermann and Kahn reactions, but antisyphilitic therapy did not benefit him. The facts that he has lived in Chicago so long and that the primary lesion was probably caused by a nail puncturing his shoe are interesting.

Dento-Alveolar Abscess with Sinus. Presented by DR. THEODORE CORNBLEET and DR. EARL R. PACE (by invitation).

This woman, aged 47, was first seen on June 5, 1936, when she presented a dome-shaped granuloma on the skin involving the left portion of the lower jaw. The lesion was 8 mm. in diameter, was slightly pedunculated and rested in a distinct dimple, as if it were pulled inward toward the mandible. Palpation revealed that it was pulled inward by an isthmus of infiltrative tissue and was firmly anchored to the bone. The external tumor appeared not unlike a granuloma pyogenicum but was much less friable. By firm pressure one could occasionally express a droplet of bloody pus from its center. The patient stated that she had attacks of severe toothache during the winter. She was given emergency treatment for pain only. The attacks recurred frequently, and later she felt a hard lump over the bone at the base of the aching bicuspid. This lesion was only slightly tender, but over it a dark spot appeared which eventually "festered." She opened this lesion on several occasions and obtained pus, but it did not improve. When she was seen in June a diagnosis of a dento-alveolar abscess with sinus was made.

The granuloma was examined histologically and revealed chronic inflammatory tissue with secondary infection. Roentgenograms of the teeth revealed an apical abscess of the left lower bicuspid. Injection of iodized poppy-seed oil 40 per cent was attempted for roentgenographic visualization of the track but was not successful.

The offending tooth was extracted on July 1, after which the lesion healed rapidly. There is now present only a slightly depressed soft scar with no palpable underlying pathologic changes. No other therapy was used.

Histologic sections, roentgenograms and a photograph of the original condition are shown.

DISCUSSION

DR. CLARK W. FINNERUD: Dr. Nelson P. Anderson of Los Angeles described a number of cases of that condition (Persistent Sinus Tracts of Dental Origin, ARCH. DERMAT. & SYPH. to be published) and pointed out that such cases are not uncommon in the experience of dentists but that they are not often observed by dermatologists.

DR. RUBEN NOMLAND: I have seen four patients with such sinuses who recovered as a result of proper treatment of the dental condition without any local therapy whatever.

DR. HARRY M. HEDGE: I saw a patient who had been treated for a tuberculous condition because of a positive Mantoux reaction. I suggested the possibility of a tumor of this type and have since been informed that the condition cleared up entirely.

DR. THEODORE CORNBLEET: I heard some one mention after looking at the patient that the lesion might be a granuloma pyogenicum, but the appearance of the lesion was never that of this disease except on superficial observation. The lesion was attached to the underlying structures. The patient's teeth were in bad condition, and a roentgenogram showed a single abscess of the affected tooth, from which the sinus burrowed to the skin. Without any local treatment of the cutaneous lesion, the skin healed after the affected tooth was removed.

Generalized Dermatitis Resulting from Moniliasis During Treatment for Syphilis. Presented by DR. THEODORE CORNBLEET and DR. EARL R. PACE (by invitation).

This Negro, aged 37, presents an eruption which began in the crotch during April 1936. He went to one of the municipal dispensaries and after a test of the blood was made he was given fifteen injections in the hip and fifteen injections in the vein. During the period in which the last two injections were given the crural eruption became generalized, but the hands, feet and face were spared. The skin was scaly but not swollen. The injections were discontinued, and the patient began using an ointment dispensed at the Provident Hospital but did not improve.

The patient entered the Cook County Hospital on August 12 and remained there until October 5, when the eruption had receded and involved only the scalp, the axillae and the crotch. On October 12 the scalp was covered with a diffuse thin superficial scale; the axillae showed a superficial erythematous fairly well defined dermatitis, and the crotch was affected by a sharply marginated dermatitis such as is seen in an ordinary eczema marginatum.

Scales removed from the scalp, axillae and crotch showed numerous hyphae and spores. The appearance of the organism was that of a monilia.

DISCUSSION

DR. MAX S. WIEN: I think this is an example of a mild cutaneous reaction of the type that was discussed by Stokes and Kulchar *(Brit. J. Dermat.* **46:** 134 [March] 1934). In that discussion these authors offered evidence that a dermatophytic focus may serve as the starting point of an "arsenical" dermatitis and expressed the feeling that minute amounts of arsphenamine in persons sensitive to arsphenamine may cause a flare-up and tend to generalize a local, apparently mycotic dermatitis. I believe the case presented falls within the scope of the cases discussed by Stokes and Kulchar.

DR. THEODORE CORNBLEET: The question of exfoliative dermatitis comes to the fore, but it seems to me that because the man did not have dermatitis of the hands or of the feet, parts that are generally involved in exfoliative dermatitis on the basis of arsenicals, that possibility may be ruled out. I think the scope narrows down to the extension of a superficial fungous infection under the influence of the drug. The question arises as to whether or not these patients should be rigidly examined for any dermatitis that may spread when antisyphilitic therapy is given; but perhaps that would be carrying things too far, for many patients have fungous infections while they are receiving antisyphilitic treatment, yet one rarely sees the occurrence of anything like this.

Glomus Tumor (Histologic Demonstration). Presented by DR. CLARK W. FINNERUD and DR. RALPH H. SCULL (by invitation).

This man, aged 58, complained of a lesion on the anterior aspect of the lower third of the right thigh, which was first noted eight months previously whenever any pressure was applied to this area. The lesion was pea sized and slightly ele-

vated and appeared as a glistening, bluish, rather soft nodule. It was removed surgically, and sections were made for histologic study.

There was little change in the epithelium, except some thinning from pressure from the growth beneath. The corium and hypoderm showed several vascular spaces of various sizes lined with endothelium. Between these spaces were areas of round and oval cells with pale-staining cytoplasm. The blood vessels were thick walled and there were nerve trunks on each side of these vascular spaces. Both muscular and neural elements were discernible, although specific stains for nerve tissue have not been made as yet.

DISCUSSION

DR. HAMILTON MONTGOMERY, Rochester, Minn.: Glomus tumors have been recognized in this country only within the last few years. In the past pathologists in general have most commonly made the erroneous diagnosis of hemangio-endothelioma. The histologic picture varies greatly, however, in individual cases. In some instances the lesion simulates hemangio-endothelioma but there are definite glomus bodies, nerves and muscle tissue, and in other cases on a superficial glance the condition appears to be simply subepidermal fibrosis.

DR. CLARK W. FINNERUD: One should remember that a glomus tumor is simply a benign painful tumorous proliferation of a normal structure in the skin. The glomus bodies that are located throughout the skin presumably have to do with regulating the arterial flow, thereby controlling the temperature of the skin. The lesions vary considerably both clinically and histologically. It is usually the vascular element that predominates, but it may be the neural or the muscular element.

DR. DAVID LIEBERTHAL: It is exceedingly interesting to find these so-called glomus tumors in localities where glomus bodies are usually not observed on anatomic dissection. Glomus bodies as normal formations, one occurring on each side of the neck at the bifurcation of the carotid artery and one situated anterior to the coccyx, were first described by Luschka in 1854. As glomus tumors, hyperplastic and therefore pathologic structures, are being observed in various other locations, it would be of great interest to know if glomus bodies are preexistent in these and, on the other hand, if formation of the tumors occurs also in the glomus bodies described by Luschka.

DR. A. SLEPYAN: During the past four years, the opportunity has arisen at the Cook County Hospital to study 3 persons with glomus tumors. In each instance there was a slowly growing circumscribed subcutaneous purplish nodular lesion resembling a hemangioma, which when touched produced "trigger-like" pain up and down the extremity. One patient noted symptoms twenty-eight years before the removal of the tumor; another noted them ten years before.

Popoff (*Arch. Path.* **18**: 295 [Sept.] 1934) suggested that the glomus serves to regulate the arteriovenous circulation and the interstitial pressure as well as the temperature of the body, and he expressed the belief that the glomus tumor is merely a benign overgrowth of the normal glomus.

Recently, the occurrence of a nonmetastasizing malignant tumor of the small pelvis, derived from the glomus coccygeus, was reported by Kufler (*Frankfurt. Ztschr. f. Path.* **49**: 236, 1936), who reasoned that since the glomus coccygeus is a homolog of the normal glomus, all tumors arising therefrom are glomus tumors. I have been unable to find other reports of malignant changes.

DR. MARCUS R. CARO: I recently saw one of these tumors located on the front of the knee that had been present for about twenty years without any change in appearance. The tumor was bluish red and was exquisitely tender to pressure. Its histologic appearance was identical with the sections shown here today.

DR. CLARK W. FINNERUD: Dr. Weidman recently read a paper, as yet unpublished, which mentions the difference in clinical characteristics in these cases. The first case of this disease which I observed, about a year ago, was also observed by Dr. Ebert. There was a lesion on the arm about the size of a thumb nail that looked much like a fairly heavily pigmented fibroma durum. The histologic picture was almost identical with the one in this case.

MAX S. WIEN, M.D., *President*

Regular Meeting, Nov. 18, 1936

RUBEN NOMLAND, M.D., *Secretary*

A Case for Diagnosis. Presented by DR. OLIVER S. ORMSBY.

This woman, aged 26, presents a cutaneous disease which was first noted at the age of 5 years. At that time a few lesions were present on the flexor aspect of the wrist. When the patient was 10 years old the eruption began to develop on the back, shoulders and chest. Five years ago the arm became involved, and three years ago, the neck.

The eruption is symmetrically situated on the sides of the neck, over the shoulders and on the chest, including the surfaces of the breasts and extending in a v-shaped area from the breasts half-way to the umbilicus; it also involves the internal surfaces of the arms from the axillae to the elbows, the flexor surfaces of the wrists and a small area on the dorsal surface of each hand.

The eruption is composed primarily of oval and elongated papules of various sizes, some of which are pigmented. On the sides of the neck the papules are arranged in perpendicular lines. On the chest, over the breasts and extending below the breasts toward the umbilicus, the eruption has a wavelike arrangement and corresponds in general to the lines of cleavage of the skin. In this location there is a retiform arrangement of the lesions, the margin of the individual ringlike areas being pigmented in fine lines. Here, as well as on the arms, the papules have a moniliform arrangement, being joined end to end like a string of beads. The entire skin of the chest presents a deeper resistance to the palpating finger than the individual lesions would indicate. On the back, between the shoulders, there is a triangular area in which the eruption is identical with that on the chest. On the flexor surfaces of the wrists are large plaques composed of individual papules and nodules, varying in size from that of a pinhead to that of a coffee bean. These lesions are white and present a cartilaginous resistance. On the dorsal surface of each hand there is a band of lesions extending from the wrist to the proximal phalanx of the thumb. The ends of the fingers are clubbed. The skin of the face is somewhat smooth and moderately infiltrated. No individual lesions have developed there.

General examination of the patient showed the basal metabolic rate to be normal; examination and chemical analysis of the blood showed nothing abnormal. A circulatory change is indicated by blanching of the fingers, which occurs particularly during the cold weather. The eruption produces no subjective symptoms.

The histologic observations were as follows: Sections stained with hematoxylin and eosin showed merely a moderate number of chromatophores in the papillary and subpapillary portions of the corium and moderate deposition of pigment in the basal layer of the epidermis. There was a slight perivascular infiltration of cells in the corium. Stains for elastic tissue showed no appreciable alteration of that tissue. Other differential stains have not been completed at the time of this report.

DISCUSSION

DR. UDO J. WILE, Ann Arbor, Mich.: This case is unique, and I have no diagnosis to suggest which would satisfactorily explain the entire condition. Some of the features suggest scleroderma, particularly of the face and the anterior portion of the chest. In this connection it is worth while to remember that extraordinary pigmentary changes are not infrequent in scleroderma. However, in my experience with scleroderma I have never observed pigmentation with the distribution and character presented in this case. The histologic observations are not inconsistent with those in scleroderma.

DR. H. E. MICHELSON, Minneapolis: At about the time when one congratulates oneself on being able to classify the conditions of most of the patients presented,

Dr. Ormsby comes along with something new. Of course, I cannot offer a diagnosis, but I am inclined to think that the pigment is not the most important part of the picture and that it is a secondary phenomenon.

DR. CLARK W. FINNERUD: I had an opportunity to see the sections before the meeting and was especially interested in seeing the patient. From the sections I thought that the condition was most likely an unusual pigmentary anomaly, probably a nevus, although scleroderma and numerous other diseases were considered. It apparently is not lichen ruber moniliformis or any of the unusual pigmentary diseases. After seeing the patient today I rather feel that, instead of being scleroderma, it may prove to be an unusual nevus. The differential stains have not been completed.

DR. S. W. BECKER: This case is unique in my experience. The lesions on the wrist, which are the oldest ones, are entirely depigmented, and the lesions on the chest show melanosis. In the sections I saw there is nothing to make one think of nevus in the sense of naevus pigmentosus, which usually has definite characteristics on section. The condition strikes me as some kind of fibrotic change, with the bundles of collagen arranged differently from those seen in ordinary scleroderma. I agree with Dr. Michelson that the pigmentation may be secondary. It is not unusual to see both hypopigmentation and hyperpigmentation in scleroderma.

DR. E. P. ZEISLER: I do not see why the condition cannot be classified as bandlike scleroderma with the subtitle moniliformis added.

DR. CLARK W. FINNERUD: Certain types of nevus show no suggestion of nevus cells with ordinary stains.

DR. THEODORE CORNBLEET: I do not know what the dermatosis is, but I was interested in the hardening of the tissues. I think that mere proliferation of the collagen itself does not give rise to the peculiar type of hardness in scleroderma, and I suspect that the calcium deposits have a great deal to do with the peculiar texture of these tissues. I think the condition is different from that seen in scars and keloids. It is known that in many dermatoses the skin actually retains calcium. It would be interesting to examine the cutaneous lesion of this patient and see if there is a deposit of calcium. I think that in diseases other than scleroderma the skin retains calcium, and I believe that in this case large quantities of calcium would be found.

DR. CLARK W. FINNERUD: Von Kossa's silver impregnation stain demonstrates calcium in sections quite specifically.

DR. E. A. OLIVER: This case calls to mind an illustration that I saw in the "Iconographia dermatologica" recently. At present I cannot recall just what the illustration was labeled (it was one of scleroderma circumscriptum et diffusum), but I have no diagnosis to offer, as I do not believe such a case has ever been presented before the society. It is unique.

DR. OLIVER S. ORMSBY: I can throw no further light on the case in the way of diagnosis. As the disease began in infancy, an unusual nevus was considered. Against this, however, is the fact that the lesions were localized on the flexors of the wrists until three years ago, when they appeared in sites now affected. The histologic picture is not that of nevus, though studies were made of both pigmented and nonpigmented lesions. Scleroderma also was considered, on account of the hardening of the skin in the affected areas and also on account of the pigmentation. The hardening was pronounced over the chest, involved the entire skin and was not limited to the lesions, which seemed to be superimposed on an indurated base. The patient states that the skin first gets hard and then lumpy; then the lumps become brown. This, however, was not the evolution on the wrists, as no pigment is present there, and they were the earliest to appear. An extraordinary picture is presented by the lesions' arrangement in wavelike rows on the chest, along the lines of cleavage of the skin. On the arms moniliform lesions are present, the beadlike lines simulating those seen in lichen moniliformis. The perpendicular lines of lesions on the neck

add to the striking picture, as does the beginning stiffness of the skin of the face, which, however, as yet shows no individual lesions. In working up the case I found no abnormalities in the blood chemistry. The basal metabolic rate was normal. In short, the skin alone showed pathologic changes, in which an unusual type of nevus or scleroderma is suggested. The condition cannot be said with certainty to be either; so it may be one not previously described.

A Case for Diagnosis (Dermatomyositis? Scleroderma?). Presented by DR. E. P. ZEISLER.

This white woman, aged 43, for eight months has had swelling of the forearms, hands, legs and feet, accompanied with pain, loss of 40 pounds (18.14 Kg.) and weakness. The first attack of swelling lasted two and a half months and cleared up; it then recurred, with tenderness and stiffness. Hardening of the tissues progressed until the patient was unable to close her fingers. This condition has persisted in spite of a long course of physical therapy.

There is deep induration of the forearms, hands and lower extremities, with some atrophy. The skin is irregularly pitted and shiny and is painful and tender on pressure. There is decided limitation of motion of the joints of the hands and feet. In addition, the patient shows evidence of oral sepsis, chronic tonsillitis, hyperthyroidism and chronic infectious arthritis.

Examination of the peripheral vascular system in the clinic suggested a low grade inflammation of the skin and underlying tissues, including the muscles, with some degree of vasospasm present.

The uric acid content of the blood was high (7.5 mg. per hundred cubic centimeters); the calcium content was 10.5 mg., and the phosphorus content, 3.8 mg. Examination of the blood and the Wassermann test gave negative results. Roentgenographic examination gave no evidence of calcium deposit.

The muscle and subcutaneous tissue when examined microscopically revealed marked fibrosis of the subcutaneous tissue, which was interpreted as scleroderma.

DISCUSSION

DR. LOUIS A. BRUNSTING, Rochester, Minn.: In many instances there is no sharp line of distinction between dermatomyositis and some of the more acute forms of diffuse scleroderma. In both conditions there may be involvement of the muscles, but in dermatomyositis the prognosis is infinitely worse. In this patient the arms and legs show definite sclerodermatous changes plus vasomotor instability. In spite of the suggestive involvement elsewhere, I think there is hardly enough muscular weakness and systemic debility to allow the use of the name dermatomyositis in the present stage.

DR. THEODORE CORNBLEET: I have been trying to get a picture in my mind of what Sellei has described and called acrosclerosis. Dr. Finnerud, I think, said Sellei pointed out several patients with that condition to him when he visited Sellei's clinic, and I would be interested in hearing from him.

DR. CLARK W. FINNERUD: I have not a very clear picture of Sellei's acrosclerosis in mind, as distinguished from scleroderma. To me the cases are all instances of scleroderma.

DR. OLIVER S. ORMSBY: I think the description of acrosclerosis given by Sellei corresponds to that of diffuse scleroderma given by most writers, although I believe Dr. O'Leary is convinced through his histologic studies that acrosclerosis should be considered as having a syndrome distinct from that of scleroderma. Drs. Butler and Wise believe that acrosclerosis is diffuse scleroderma with sclerodactylia, in which the condition begins on the fingers and extends upward to involve the face and other areas.

DR. H. E. MICHELSON, Minneapolis: In the last issue of the *Annales* there is a table by Sellei in which he compares cases of this group, and he uses the terms acrosclerosis and diffuse scleroderma as synonyms. One trouble in all this work is that the patient does not present himself until the condition is well advanced. If one were to see the early stages of the condition in a patient who

presents the classic signs of the so-called acrosclerosis and in one who presents those of diffuse scleroderma involving the extremities, I believe they would be similar.

DR. E. P. ZEISLER: I was interested in Dr. Brunsting's remarks, for more of these cases are seen at the Mayo Clinic than elsewhere. I think there is more muscular involvement than is usually seen, but I am willing to accept the diagnosis of diffuse scleroderma.

A Case for Diagnosis. Presented by DR. F. E. SENEAR.

This man, aged 19, presented a lesion of the buccal mucosa which was first called to his attention ten months ago, when his dentist spoke of what he called "scalding" on the buccal mucosa. He consulted a physician, who gave him arsenic by mouth and about six injections of sodium cacodylate during June. Repeated examinations for fungi of any type, both by direct smear and by culture, have given negative results. Solutions of gentian violet and of iodine have been used locally without any effect on the lesions. A 10 per cent solution of trichloro-acetic acid was applied on several occasions; the treatment was followed by practical disappearance of the lesions. They returned, however, immediately on cessation of the treatment.

On examination it is noted that the buccal mucosa on both sides of the mouth is profusely involved by the presence of a grayish white membranous-appearing covering. Although this looks as if it could be removed entirely by means of curettage, it is difficult to remove any of the epithelial covering.

DISCUSSION

DR. E. P. ZEISLER: With the adherent white membrane that is present, one should consider a deep-seated infection by Monilia or a submucous thrush. I think if careful studies are made the fungus may be found.

DR. JAMES H. MITCHELL: I did not have a very good look at the lesions, but I have the feeling that further search might be rewarded by the discovery of Monilia.

DR. CLARK W. FINNERUD: Dr. Tobin and I have recently seen three patients with monilial stomatitis at the dispensary, whom we readily recalled when we saw this patient, and we thought the condition might be the same thing; but Dr. Senear says the mycologist has definitely ruled this out repeatedly. I noticed that the patient has a variety of metals in the mouth, and I therefore think it might be well to consider thickening from chronic irritation in the form of electrical discharge.

DR. OLIVER S. ORMSBY: I think the maplike arrangement of the lesions is similar to the infection described by Dr. Engman, in which a fungus was found which proved to be Monilia. The clinical description of Dr. Engman's case would indicate a close resemblance between it and the present case.

DR. H. R. FOERSTER, Milwaukee: The fine white brushlike striations on the lip and the white papules on the dorsum of the tongue are suggestive of lichen planus and tend to rule out the possibility of infection due to Monilia. The warty lesion on the buccal mucosa may be one of leukokeratosis.

DR. S. W. BECKER: I saw a patient a few weeks ago with a condition almost identical with this, which had been present ever since she could remember. Repeated examinations for Monilia gave negative results. Microscopic section showed no Monilia, and we made a tentative diagnosis of exfoliative stomatitis.

DR. THEODORE CORNBLEET: I do not think all, by any means, of these thrushlike pictures are caused by Monilia. There is a similar case at the University of Illinois, in which the patient has involvement of both the mouth and the nails. Repeated cultures have been made in every possible way, but it has not been possible to isolate Monilia. An organism has been recovered repeatedly both from the mouth and from the paronychial lesions, the name of which escapes me at present.

DR. F. E. SENEAR: When I first saw this patient I thought that he unquestionably had a monilial infection. I asked Dr. Oliver to see the patient, and he was of the same opinion. It is very difficult to remove any of the material, and what we got was not from the deeper mucosa. We considered lichen planus and a diffuse leukoplakia as alternatives. We shall take some tissue from a deeper portion of the involved area and have it checked in the laboratory again. Clinically the condition appeared to be monilial, but I agree with Dr. Foerster that some lesions are suggestive of lichen planus.

Acrodermatitis Chronica Atrophicans (Unilateral). Presented by DR. THEODORE CORNBLEET and DR. EARL R. PACE (by invitation).

This Lithuanian woman, aged 33, presents a clinically and histologically typical acrodermatitis chronica atrophicans limited to the left hand and forearm. She states that it began in 1922 as dark red spots or patches over the knuckles of the left hand and gradually attained the present involvement.

The major patch covers about three fourths of the dorsum of the hand and is loose; wrinkled, transparent appearing and grossly dark red with ivory streaks (tendons). Over the elbow and both ulnar prominences are patches less completely atrophic, the one on the wrist being still softly infiltrated. The patient states that the left arm, leg and side of the trunk are very susceptible to chilling and that she has some "left-sided rheumatic" symptoms when the weather changes.

A histologic section showed a thin, flattened epidermis, separated by a narrow strip of fibrous tissue from a dense cellular infiltration of plasma cells and lymphocytes, which filled the upper part of the corium and extended deeply into it as a mantle about the blood vessels and sweat glands.

DISCUSSION

DR. OLIVER S. ORMSBY: I have observed two or three cases of unilateral atrophy similar to this one, and in each case the condition proved to be of syphilitic origin. In a case of unilateral atrophy this etiologic factor should be considered and investigated.

DR. THEODORE CORNBLEET: We did not investigate the possibility that syphilis produced this picture. Dr. Caro examined the section, and I believe he did not see any evidence of syphilis.

DR. MARCUS R. CARO: No histologic changes characteristic of syphilis were noted in the section.

Sarcoma, Idiopathic, Multiple, Pigmented (Kaposi). Presented by DR. TIBOR BENEDEK (by invitation) and DR. A. W. STILLIANS.

This white man, a farm worker, aged 24, was first seen May 21, 1936. His family and his early history are unimportant, and he states that he has had no venereal infection of any kind. He states that the first symptom of his disease appeared in 1929, as bluish red or brownish red patches on his legs. These lesions gradually extended, and he first sought medical advice in 1933. The physician made a diagnosis of varicose veins and allegedly gave some injections into the veins. In 1934 the patient consulted another physician, who also made a diagnosis of varicose veins and gave the patient one intravenous injection into each leg.

When the patient was admitted to the clinic, his general health and nutrition were good. On the abdomen and in the inguinal region were veins, some tortuous, which were plainly visible on infra-red photographs. Such photographs, perhaps because of the intravenous injections, showed very few veins on the legs, but both legs showed similar lesions. There were a dozen or more flattened, well demarcated, circumscribed infiltrations, varying in size from that of a pea to that of a silver half-dollar, and in color from that of a plum to a dark purple or black, situated on the inner side of the middle and lower portions of both legs and the inner surfaces of both ankles. Some scattered lesions appeared on the outer side of the left leg and ankle. The skin over these lesions was tense and glistening. The backs of both feet and the ulnar side of the third toe of the right foot showed

similar multiple lens-sized lesions. A lesion of the right calf was ulcerated, with a painful punched-out ulcer 1.5 cm. in diameter.

In the laboratory examination of the blood showed 4,200,000 erythrocytes, 7,000 leukocytes and a hemoglobin content of 12.77 Gm. per hundred cubic centimeters. The Wassermann and Kahn reactions were repeatedly positive. Examination of the spinal fluid gave negative results.

After twelve injections of a bismuth preparation and three of neoarsphenamine, for totals of 1 and 2 Gm., respectively, a sudden change was seen in the aspect of two large lesions. The lesion of the third toe of the right foot ulcerated and involved the entire length of the toe, and the ulcer of the right calf became larger and deeper. Other lesions of quite different duration, as well as the deep ulcerations, were not influenced during the course of further antisyphilitic treatment.

Biopsies were made of specimens from three different areas which showed the following histologic changes:

1. From an atrophic lesion the size of a lens on the inner side of the left leg, which showed a tendency to undergo spontaneous involution: The center displayed a narrow epidermis of only a few layers. The border between the epidermis and the corium was an even line, and there were no pegs and no papillae. The collagen tissue of the corium was thoroughly homogeneous, poor in cellular elements of every kind but showing rich deposits of dark brown pigment in fine granules or even in clusters. The capillaries were fewer; their walls were thick and sometimes hyaline and their lumens now and then already closed.

2. From a section of the right calf half in the normal and half in the abnormal skin: The epidermis at the side of the section showed remarkable acanthosis; the pegs were broadened and thickened. Suddenly, toward the center, the epidermis was nearly lost; nothing but the lowest layer of the rete was left, with some elongated, narrow pegs. This thin layer of the epidermis was torn in several places by new and high grade hemorrhages. This part of the section displayed many cystlike hollows filled with blood. Beyond these hemorrhages the epidermis showed marked acanthosis again. The corium contained thick homogeneous bundles of collagen with a few spindle cells; the lymph spaces were dilated. The number of old and new capillaries was large, and these showed remarkable dilatation. The endothelial cells were often swollen and their walls thickened. In many spots the stratum papillare was edematous.

3. From a relatively young lesion on the inner portion of the left ankle: The epidermis displayed hyperkeratosis and in the middle of the section a beginning atrophy, while on both ends of this slightly atrophic portion the epidermis showed pronounced acanthosis. The papillae were long and broad. Within the papillae were circular bundles of collagen enclosing groups of spindle cells. The collagen tissue was homogeneous and full of clusters of pigment. These groups of cells contained new and dilated capillaries. The blood vessels and capillaries around the unaltered coil glands were augmented and dilated; some of them had thickened walls.

The clinical appearance as well as the histologic picture is typical of Kaposi's sarcoma. The youth of the patient (17) at onset, the duration of the disease (seven years), the infiltrative character of the lesions and the absence of tumors, the great tendency of the lesions to ulcerate, on the one hand, and to undergo spontaneous involution, on the other, and the general good health of the patient are remarkable features.

DISCUSSION

DR. H. E. MICHELSON: I think the histologic picture is consistent with the diagnosis given. It is a little out of the ordinary to see so much inflammation that ulceration is early, but such cases have been reported.

DR. S. W. BECKER: I have been studying several of these cases intensively. The lesions on the calf of this patient resemble ecthyma, and the patient stated that the atrophic plaques were the sites of similar lesions of the same type. I have never seen Kaposi's sarcoma that underwent involution and left atrophic

plaques of this type. The microscopic section shows proliferation but very few of the spindle cells seen in Kaposi's sarcoma. The lesions on the ankle I consider compatible with that diagnosis.

DR. HARRY M. HEDGE: You may remember the patient I presented in 1926 and again in 1928. He was a boy of the same age and had the same type of eruption as this patient, and I have a photograph showing the similarity between the two conditions. My patient had ulceration at the toes just as this one did. The condition entirely cleared up under roentgen therapy, and the patient has continued to work. He is now 39 years old.

DR. TIBOR BENEDEK: The sections show all the classic features of Kaposi's sarcoma: new growth of capillaries, fresh and old hemorrhages, depots of hemosiderin in granules and clusters, thick, homogeneous bundles of collagen tissue, intrapapillary nodes and nodules of spindle cells surrounded by circular bundles of homogeneous collagen tissue and new and dilated capillaries within the spindle cells. The atrophy of the epidermis and the ulceration of the lesions belong to that disorder.

Elephantiasis. Presented by DR. F. E. SENEAR and DR. H. SHELLOW (by invitation).

This Negro, aged 28, presents a swelling of the left foot and leg of about nine years' duration. This condition manifested itself about three weeks after an operation for swollen testicles, the incision having been made on the right side. About six years ago the patient first noted the appearance of lesions, particularly about the leg, that began as tiny ulcers every time a vein ruptured.

The entire left leg is greatly enlarged and shows firm, nonpitting edema. Over the lower portion of the leg are numerous short, superficial veins of pencil lead thickness or larger. Many of these vessels come to the surface as small dark shotlike points. The skin over the lower part of the leg shows follicular atrophic areas which are hyperpigmented. More recent lesions, some of which are deep, are inflammatory and heavily crusted. One recent lesion on the lateral aspect has a wide area of redness and is rather firm, painful and ulcerated. A larger area, coarse and cicatricial, on the medial aspect is the result of an injury.

The serologic examination of the blood gave negative results.

On histologic section the epidermis appeared thin and flattened and covered by a thick, adherent scale, which in one part showed parakeratosis. In the upper part of the corium lay a group of dilated small blood vessels, surrounded by fibrous tissue, in which lay many granules of blood pigment. Below and extending to both sides of this small angioma there was a large, tortuous blood vessel, with a greatly thickened wall, which showed myxomatous degeneration. In one place, beneath the parakeratotic part of the scale, this thickened blood vessel extended right up to the epidermis.

DISCUSSION

DR. UDO J. WILE, Ann Arbor, Mich.: I suggest the diagnosis of cutaneous infarcts in this case. I would call attention to the fact that these are not uncommon in association with thrombophlebitis. I have seen a large number of lesions of this type, and it is noteworthy that they frequently simulate gummas. The microscopic picture is typical for an infarcted lesion.

DR. LOUIS A. BRUNSTING: There is a history of recurring chills and fever with localized swelling and redness of the leg, which makes it seem likely that there is thrombophlebitis involving the deeper structures. In cases of some swollen legs with ulcerations one must keep in mind the question of acquired arteriovenous communication.

DR. MARCUS R. CARO: The thickening and myxomatous degeneration of the wall of the blood vessel in the histologic section suggest that the changes were produced by an inflammatory process rather than by an arteriovenous communication.

DR. F. E. SENEAR: Dr. Wile's remarks about the case are in accord with our conception of what is happening here.

DR. E. A. OLIVER: I believe this condition is a direct result of the operation the patient had on his testicle. He told me the condition began with a chill and fever following the operation. Had there been previous evidence of this condition, one might think of an arteriovenous aneurysm, as the leg presents many of the characteristics of such a condition. At the Rush Medical Clinic last winter a patient presented much the same picture, except that he showed no evidence of ulceration of the skin.

Beau's Line (Single) of Each Nail. Presented by DR. THEODORE CORNBLEET.

This woman, aged 37, in July 1936 noted an extensive dermatitis venenata of the face, neck and extremities, with an acute vesicular eruption, which went on to scaling. Wet dressings of a diluted solution of aluminum subacetate were used in the beginning, and bland ointments were then employed. The patient made an uneventful recovery after three weeks. At about that time she noted the appearance of a transverse linear depression at the proximal part of each of the nails. These depressions have been moving toward the free border and on some of the toes have disappeared.

DISCUSSION

DR. CLEVELAND J. WHITE: The appearance of the nails, with their transverse corrugations, is the result of a general bodily toxic disturbance. It is peculiar how such manifestations in the nails can be so evident when clinically no objective symptoms of the glabrous skin can be detected.

DR. E. P. ZEISLER: These transverse ridges of the nail are often seen following trophic disturbances. You may recall the paper my father wrote years ago, calling attention to the transverse lines appearing on his toe-nails after a fracture of the hip.

DR. HARRY M. HEDGE: I saw a patient with a similar condition at the Chicago Memorial Hospital three weeks ago. About three months ago that patient had severe tonsillitis with septic sore throat which lasted two or three weeks. That cleared up, but about a month ago the patient came down with tonsillitis again, after which erythema nodosum developed in the right shin, and the bases of the nails became involved, showing Beau's lines.

DR. THEODORE CORNBLEET: To me these lines indicate that there was a partial arrest in the keratinization that was taking place when that part of the nail was laid down and that there is some interference with the normal activity of the matrix of the nail. While infection and toxemia might do this, I think in this case the disease of the extremities finally reached the matrix of the nail and interfered with its normal processes.

Vaccinia. Presented by DR. M. H. EBERT and DR. DAVID V. OMENS.

This woman, aged 22, and her daughter, aged 5 years, are presented. On the mother's chin is a dime-sized flat-topped papule with central crusting, surrounded by a purulent zone, which has been present for about two weeks. There is accompanying adenitis of the submaxillary and cervical regions. The mother has never been vaccinated. The Wassermann reaction was negative.

The child was vaccinated on the left arm five weeks ago, with the usual reaction.

DISCUSSION

DR. E. A. OLIVER: The mother has never been vaccinated. The child was recently vaccinated and shows a few vaccinial lesions around the original vaccination. In some way or other the mother inoculated herself on the chin. I have always been led to believe that the prognosis in cases of generalized vaccinia was poor, but two years ago a patient with eczema, a child aged 5 years, was vaccinated and later had rather severe vaccinia, with many lesions on the face and chest. The child was very ill for three or four weeks but eventually recovered and, strangely enough, showed little evidence of her infection.

DR. MAX S. WIEN: A few years ago there was a case at the Research and Educational Hospital that was similar to Dr. Oliver's. Vaccinia developed in a child with infantile eczema, but the patient made a good recovery. The child's face was extensively involved after contact with a recent vaccination on the upper arm.

DR. JAMES H. MITCHELL: Some years ago a mother brought in her child and was ready to make trouble. The child had been vaccinated, and at that time the upper arm and the face were covered with crusts. She was a fine exhibit A for antivaccinationists. However, the presence of Streptococcus was demonstrated, and the condition proved to be nothing but an impetigo, following vaccination but having nothing to do with it.

Folliculitis Ulerythematosa Reticulata, with Naevus Comedonicus and Naevus Papillomatosus. Presented by DR. THEODORE CORNBLEET and DR. EARL R. PACE (by invitation).

This Negress, aged 22, states that she has had the present dermatosis since birth. It consists of follicular excrescences varying from the size of a pinpoint to that of a pinhead. The lesions appear in groups, particularly on the face and to a lesser extent on the trunk and extremities. Much of the dermatosis consists of horny plugs which project above the surface of the skin. Some of the groups are made up of giant comedones, but these have become fewer during the past two months. On the face are small pits, arranged in a systematic manner and appearing reticulated. Some of these pits coalesce to form areas the size of a split pea. There is no inflammation, nor are there subjective symptoms.

DISCUSSION

DR. OLIVER S. ORMSBY: I think this case is like that originally described by Selhorst, in which there were comedo-like lesions, together with folliculitis and perifolliculitis, which produced ulcers and were followed by formation of scars. About four years ago Dr. Sweitzer reported a case of this type (ARCH. DERMAT. & SYPH. **26**:694, [Oct.] 1932), and the following year Dr. Wise reported a similar case.

DR. F. E. SENEAR: Dr. MacKee pointed out that in many cases the condition is the type seen today, in which nevoid lesions give rise to a pitted scarring resembling folliculitis ulerythematosa reticulata.

DR. THEODORE CORNBLEET: Apparently the nevus here is not a fixed one, for this woman about three months ago showed many more comedones than are present today. The fibrous excrescences seem to predominate over the comedones now, which is the reverse of the condition present only a few months ago.

Erythrocyanosis Frigida Crurum Puellarum. Presented by DR. F. E. SENEAR.

This woman, aged 45, presents a number of edematous erythematous patches of one month's duration on the legs. The patient has a poor peripheral circulation. In the past week the lesions have undergone considerable involution.

DISCUSSION

DR. S. W. BECKER: I agree with the diagnosis. This condition is frequent in European countries but infrequent here. All of the patients I have seen with these circulatory disturbances had been born in Europe. It evidently is a national characteristic there, for persons from the warm countries who stay in England do not have these circulatory lesions, including pernio, while the native English do have them. This patient was born in Lithuania.

DR. F. E. SENEAR: This is the second instance of this disease that I have seen. The first was even more definite with regard to the occurrence of the sharply defined erythematous patches. In the present case the patches were much more apparent a week ago. The first patient was born in this country but was of Scottish descent. The condition affected both legs, and there was marked edema,

with individual lesions. This disease occurs in persons with poor circulation, who might be candidates for chilblains. The patients do not complain of the extreme tenderness present in erythema nodosum. The condition persists much longer than erythema nodosum usually does, and the lesions are not nodes.

MAX S. WIEN, M.D., *President*

Dec. 16, 1936

RUBEN NOMLAND, M.D., *Secretary*

A Case for Diagnosis (Lupus Erythematosus?). Presented by DR. S. W. BECKER and DR. M. E. OBERMAYER.

This man, aged 33, of American stock, has an eruption of the nose, the lips and the skin in front of the ears which has been present for fifteen years. The eruption has persisted continuously, except during one winter when he was in Florida. He was examined at the Mayo Clinic, where he was given an ointment which had no beneficial effect. He states that the condition is aggravated by exposure to the sun. Pruritus is at times severe.

A general examination gave negative results except for mild pharyngitis and poor dental hygiene. Blood pressure was 106 systolic and 65 diastolic. The Wassermann and Kahn tests and the examination of the urine gave negative results.

A diffuse erythematoscaling eruption is present, covering the nose and the lips; the skin is thickened. Erythematoscaling patches with central atrophy are present on the skin in front of both ears.

Histologic examination of a specimen taken from the nose did not show the characteristics of lupus erythematosus. Studies made with filtered light did not disclose sensitivity to any rays contained in sunlight.

The patient is receiving treatment in the form of intravenous injections of ammonium succinimide aurate, of which he has received five. No beneficial effect on the eruption has been noted.

DISCUSSION

DR. PAUL A. O'LEARY, Rochester, Minn.: I do not recall having seen this patient before. The possibility of seborrheic eczema or of sensitivity to light seems to me more likely than the diagnosis of lupus erythematosus. The disappearance of the disease while the patient was in Florida would militate against the diagnosis of sensitivity to light, although I am unfamiliar with atrophy of the type presented here as a manifestation of seborrheic eczema.

DR. F. E. SENEAR: I had the same feeling, particularly with regard to the distribution around the nasolabial fold. A patient of mine, whom Dr. Oliver has seen, has a lesion of much the same type as this in each temporal region; in the areas which have been previously involved there is the same suggestion of atrophy that this patient shows. Otherwise the condition is purely a seborrheic eczema.

DR. S. W. BECKER: When I first saw this man, I thought the eruption was summer prurigo, but that would not explain the atrophy in front of the ears. There is something peculiar about the eruption of summer prurigo, in that it often appears early in the spring, long before the sun has a high percentage of actinic rays, and may disappear in August, when the actinic rays are numerous. It is strange that in Florida, where the sunlight is more intense, the patient was free from the eruption, while he has it in Chicago. I cannot help thinking that the eruption has something to do with sunshine but it is difficult to account for all the features on that basis.

DR. M. E. OBERMAYER: Tests for sensitivity to light with various filtered rays were carried out but did not show any deviation from normal.

Melanoma (Treated with Radium). Presented by DR. OLIVER S. ORMSBY.

This woman, aged 38, stated that there had been a dark mole in front of her left ear for as long as she could remember. Three months previous to the time of examination and period of treatment the lesion became elevated and roughened. At the time of the first examination, March 17, 1936, there was an oval area 1.5 by 3 cm., formed by a group of black macules on a dark brown background. Below the center of this lesion was a flat-topped papule, 7 mm. in diameter, with a red, crusted surface. Radium treatment was instituted by Dr. W. L. Brown, and this resulted in the eradication of the lesions, leaving a superficial smooth white atrophic area.

The technic of the treatment as reported by Dr. Brown was as follows: At the first treatment, on March 17, 1936, 100 mg. of radium, screened with 0.5 mm. of silver, was employed for three hours at a distance of 3.3 mm. The radium was distributed in several tubes which were placed along the margin of the lesion. This treatment was repeated on March 20. On March 23, 30 mg. full strength plaques were employed, screened with 0.1 mm. of aluminum and 0.8 mm. of rubber. The duration of this treatment was three hours (window lead screen used). On April 1 the fourth and final treatment was given, at which time 120 mg. of radium, screened with 0.5 mm. of silver and 0.8 mm. of rubber, was used for three hours. The radium was contained in five tubes, which were arranged along the margin of the lesion as in the first two treatments.

DISCUSSION

DR. S. W. BECKER: The result is excellent. Any one interested in melanotic macules should read a paper by G. Miescher, L. Häberlin and L. Guggenheim (Über fleckförmige Alterspigmentierungen, *Arch. f. Dermat. u. Syph.* **174**:105 [May] 1936). Attention was called there to the fact that some melanotic macules are benign and some precancerous. In the precancerous lesions there is melanotic proliferation at the junction of the epidermis and the cutis, and Miescher and his associates stated that diagnosis can be made only on microscopic section. We know that cells in typical advanced melanoma are radioresistant but that in the early stage it is possible to eradicate the lesion by giving sufficient radium.

Tattoo. Presented by DR. L. F. WEBER.

This man, aged 26, had on the left arm a tattoo, which he desired to have removed for religious reasons.

The tattoo was removed with a 50 per cent solution of tannic acid and silver nitrate.

DISCUSSION

DR. L. F. WEBER: The technic that I employed was reported some years ago in *The Journal of the American Medical Association*. My interest was from the standpoint of accidental tattoo. On that account I tried to improve my technic. After studying accidental tattoo, caused by explosions, etc., and comparing it with this, I found that it is somewhat deeper than the tattoo made by a professional tattooer. The technic is rather simple. The skin is cleaned and sterilized and 50 per cent tannic acid is swabbed on the skin. An assistant continues the swabbing throughout the operation. The skin is then drawn tight, and tattoo needles are used for tattooing the tannic acid into the skin. I have tried the hand needles but found that they are not satisfactory. They cause more pain, and the depth cannot be controlled. The number of jabs in a minute amount to from 150 to 200. Recently I used an electric motor which makes about 3,000 jabs a minute, and found that the needles go to a uniform depth. Most tattoos in the last twenty years have been put in by electric-motored machines, so that the pigment should be at about the same depth. The tannic acid, after it is tattooed in, usually produces a gray tint, and after the entire design is covered, the area is washed with sterile water and rubbed with silver nitrate. It has been my custom to apply a wet dressing of 50 per cent tannic acid and to allow it to remain for approxi-

mately twelve hours. There is considerable pain at first, but after that the discomfort is not very great. The slough usually comes out after about three weeks. I think the main thing is to tattoo the tannic acid slightly beyond the tattoo area. The most important thing is to destroy the tattoo pigment, because it is difficult to repeat the treatment. The depressed scar will be hardly noticeable.

DR. F. E. SENEAR: Does the apparatus employ multiple needles?

DR. L. F. WEBER: There are about four or five sets of needles in the machine, and they can be changed. They are all spaced at the same distance and are uniform—no. 12 sewing needles.

Koilonychia. Presented by DR. THEODORE CORNBLEET.

This Jewish boy, aged 10 years, presents dystrophy of all the finger-nails. The thumbs were first involved four years ago, and within two years all the finger-nails became affected. The extension was gradual, each successive nail being involved after an interval. The patient has had lichenified patches of dermatitis on the inner surface of the left thigh and ankle for seven years, but these patches have practically disappeared as a result of roentgen therapy. The patient had the usual diseases of childhood. There was no noteworthy disturbance just preceding the changes in the nails. No other member of the family has had a similar involvement of the nails.

Treatment has consisted of small doses of filtered roentgen rays and an iron and liver combination by mouth. There appears to be an appreciable improvement.

DISCUSSION

DR. H. RATTNER: In the *British Journal of Dermatology* (**567**:32 [Jan.] 1936) Dr. Beatrice Lewis, in discussing a similar case, implies that spoon nails in a patient should always suggest the presence of a hypochromatic anemia. What the condition of the blood was in this case I do not know, but it might be well to investigate the case with that in mind.

DR. M. E. OBERMAYER: I have under observation a patient with severe secondary anemia who has koilonychia of all finger-nails. This confirms what has been said. I wonder whether or not in Dr. Cornbleet's case the condition is present in several members of the same family.

DR. THEODORE CORNBLEET: There is apparently nobody else in this boy's family with the same condition, nor has there been anything similar at any time, according to the mother. Costello and other observers believe that anemia may be an underlying cause. The hemoglobin content of this boy's blood is 80 per cent, determined by the Tallqvist method. I have given him one-eighth unit of filtered roentgen rays weekly and a combination of liver and iron. He is distinctly improved after about seven weeks. At the start he had more clubbing than he shows now. There was, in addition, much more keratotic material at the free border of the nail.

Benign Epidermal Neoplasm (Verruca Seborrhoeica). Presented by DR. S. W. BECKER and DR. H. W. THATCHER (by invitation).

This Negress, aged 63, states that her cutaneous disease began about five years ago with a flesh-colored papule on the right thigh, accompanied by almost constant pruritus. The lesion gradually extended and at present is about 5 by 7 inches (3 by 18 cm.). It is made up of multiple elevated black verrucous keratoses, from 0.5 to 1.5 cm. in diameter, interspersed with thin, atrophic scars denoting the sites of former lesions. A few flesh-colored nodules are present. On removal of the verrucous overgrowth a raw, pulpy base is revealed. No ulceration has been noted.

The Wassermann and Kahn tests gave negative results.

Histologic section showed enormous thickening of the epithelium, with little papillary overgrowth. Mitotic figures were numerous, but were not of the multipolar type found in carcinoma. There was only slight anaplasia, practically no keratinization of individual cells and no multinucleated cells. There were struc-

tures resembling horny pearls. The entire epidermis showed intracellular edema of the type found occasionally in squamous cell carcinoma.

DISCUSSION

DR. CLARK W. FINNERUD: The history is a little suggestive of Bowen's disease, but the histologic observations are not characteristic of it, in spite of the marked dyskeratosis present in places. The microscopic picture was as definite for Bowen's disease as it was for sebaceous wart. On clinical grounds I favor the diagnosis of an unusual Bowen's disease.

DR. MARCUS R. CARO: It is difficult to rule out Bowen's disease in the section presented.

DR. S. W. BECKER: I saw this patient for the first time several weeks ago at the Provident Hospital. Dr. T. K. Lawless saw the section only and made a diagnosis of senile wart. The section from this patient resembles that condition. The clinical picture is unique for senile warts. I have seen multiple senile warts but have never seen a plaque of this type. I think some of the scarring is due to the treatment the patient has had in the past—that it has been caused by some irritating treatment. Bowen's disease should be given consideration because of the clinical appearance. On section there is little anaplasia, no multinucleated cells and no keratinization of individual cells, as seen in typical Bowen's disease. There are no pseudocystic formations, as found in the senile wart.

I believe that even those physicians who consider Bowen's disease to be intra-epidermal carcinoma might call this condition benign from the microscopic picture. We have had some epidermal lesions recently which on section contained many prickle cells with whorl formation, and which were benign from the cytologic standpoint. I believe that there are benign epidermal neoplasms (Becker, S. W.: Benign Epidermal Neoplasms, ARCH. DERMAT. & SYPH., **26**:838 [Nov.] 1932) of both basal and squamous cell types; and this, if true, places the epidermis in a class with other tissues of the body. It is difficult to conceive of a tissue as primitive as the epidermis not having benign neoplasms—which should be called epitheliomas to conform to pathologic terminology. Malignant neoplasms should be called carcinomas.

Carcinoma of Intermediate and Mixed Type. Presented by DR. W. M. WILLETT (by invitation).

This man, aged 31, a salesman (under the care of Dr. S. W. Becker), was deeply scratched fourteen or fifteen months ago on the left side of the face. He treated himself with local applications of tincture of iodine and a paste of zinc oxide. Although this treatment was continued for several weeks, the lesion did not heal. Six or seven months ago he consulted a physician, who gave him an ointment, which was applied only once because of the severe burning which it produced. No further treatment has been employed. The patient states that the lesion has enlarged little.

General physical examination and Wassermann and Kahn tests gave negative results.

On the lower part of the left cheek is a depressed erythematous scaly plaque 5 cm. in diameter. The border is rolled and pearly.

Histologic section shows carcinoma of a mixed type.

DISCUSSION

DR. E. A. OLIVER: I did not see the section in this case, but in my opinion the condition is of the type called a basal cell epithelioma.

DR. LESTER M. WIEDER, Milwaukee: I thought the clinical appearance of the lesion was characteristic of a superficial basal cell epithelioma. However, the section indicated one of a mixed cell type, which illustrates the value of taking biopsy specimens as a matter of routine when possible in cases of epithelioma.

DR. S. W. BECKER: My impression was the lesion is a superficial basal cell carcinoma, examples of which have been presented here. I think Dr. Oliver pre-

sented a man with a large eczematous lesion on the neck. I am convinced that a histologic examination of the lesion must be made before a diagnosis can be. I had a woman under observation who had an ulcer on the tip of the nose the border of which was even less evident than that of the lesion of this patient. Histologic section showed pure squamous cell carcinoma, so I think it is extremely difficult to be sure without biopsy.

Pigmentation of the Skin Due to Mercury. Presented by DR. CLARK W. FINNERUD and DR. W. W. TOBIN (by invitation).

This woman, aged 55, when first seen presented a generalized pruritic dermatitis. It was a typical scabetic eruption, and it responded readily to treatment.

At that time an uneven slate-gray pigmentation of the face and neck was noted. The patient stated that this first appeared fifteen years ago, after she had been acutely ill with an abdominal disorder, for which she had received twelve intravenous injections. Since that time she has noted periods of exacerbation and periods when the discoloration has been very faint. She has been told by various physicians that the disease was probably the result of the intravenous injections and that nothing could be done for it.

Because of the uneven pigmentation and its restriction to the head and neck, she was advised to bring names and samples of all cosmetics that she had used. The only product which she had used almost continuously over the fifteen year period was Professor Hubert's Malvina cream. The Bureau of Investigation of the American Medical Association reported that in Harvey W. Wiley's "One Thousand and One Tests" it is stated that this cream is a dangerous freckle cream, which contains ammoniated mercury, liquid petrolatum and fats.

The general examination, the serologic tests and the examination of the urine gave negative results. The blood count was normal.

A biopsy specimen taken from the neck on histologic study showed metallic deposits, which were especially prominent in the upper portion of the corium and about the sweat glands.

DISCUSSION

DR. PAUL A. O'LEARY, Rochester, Minn.: When Dr. W. H. Goeckermann studied pigmentation resulting from cold cream (J. A. M. A. **79**:605-607 [Aug. 19] 1922) he found that Luxuria cold cream produced the pigmentation in most of the cases he studied. In the majority of the creams that produced pigmentation among the preparations analyzed, there was more than one metal present. This woman presents the most pronounced degree of pigmentation that I have seen in any such case.

DR. LESTER M. WIEDER, Milwaukee: This type of case emphasizes the need of proper regulation of the sale of products which constitute a serious menace to the unsuspecting purchaser. A case of unusually severe exfoliative dermatitis was exhibited at the meeting of the Central States Dermatological Association in Cleveland last week. The condition resulted from the use of a preparation of dinitrophenol, sold over the counter for obesity. It is high time that the public receive some protection from such nostrums.

DR. E. A. OLIVER: One of the worst offenders is Gouraud's oriental cream, commonly used for removal of freckles. I have seen two cases of severe pigmentation following its use.

DR. MARCUS R. CARO: Ammoniated mercury is used on the skin so often therapeutically that one would expect to find more cases of pigmentation resulting from it. Have any cases been reported in which pigmentation was caused by its use alone?

DR. S. W. BECKER: One reason for the lack of pigmentation of this type following the use of ammoniated mercury is that it is not used for a long enough period. I had one patient who used Gouraud's oriental cream for twenty years before the pigmentation appeared. It seems to take a long time.

DR. CLARK W. FINNERUD: I think the patient had used the cream fifteen years before she noticed the discoloration. We were not aware of the Lugol test

for mercury at the time the sections were run. The pigment in the sections does not look like melanin. We shall examine them with the stain for iodine.

Erythema Figuratum Perstans. Presented by DR. M. H. EBERT and DR. W. W. TOBIN (by invitation).

This Negro, aged 33, presents red papular and annular lesions of four months' duration on the chest and in smaller numbers on the back. The patient states that the lesions begin as erythematous papules and spread peripherally as elevated, cordlike smooth red rings, leaving in their wake hyperpigmentation. Occasionally there has been some pruritus.

The largest lesion on the chest is the size of a palm, with a similar but smaller spreading lesion in the center. The patient states that there have been no previous attacks. Since the beginning of the period of observation similar lesions have developed at the terminal phalanges of the hands and feet, which are more purpuric.

The serologic tests of the blood gave negative results. The prostate showed 2 plus infection.

Histologic study of one of the developing papular lesions showed edema of the epidermis and the corium, dilatation of the blood vessels and round and plasma cell infiltrates around the blood vessels and sebaceous and sweat glands. The elastic tissue appeared normal. In some areas the epidermis was acanthotic and in others, atrophic.

DISCUSSION

DR. DAVID LIEBERTHAL: I agree with the diagnosis of toxic erythema.

DR. F. E. SENEAR: I think the diagnosis of erythema centrifugum has been considered as an alternative, but the presence of other toxic lesions, such as purpuric manifestations, on the tips of the toes and the rather deep swelling in one finger, together with the fact that the joint is already involved, makes me agree with the diagnosis.

DR. E. A. OLIVER: When I first saw this patient, the lesions had much the appearance of annulopapular syphilis. Failure to improve under antisyphilitic treatment and two negative Wassermann reactions prompted a change in diagnosis to that of persistent toxic erythema of unknown etiology. The development of new lesions and the swelling of the fingers further substantiate that diagnosis.

Periadenitis Mucosa Necrotica Recurrens (Sutton). Presented by DR. W. W. TOBIN (by invitation).

This woman, aged 29, complains of recurring lesions of the oral mucous membrane that have been present all her life. She states that these lesions have become more severe since the birth of her last child, nineteen months ago, and that at times they are more pronounced during the menstrual period, clearing up afterward. Recently, however, there has apparently been no connection with the menses, the lesions persisting throughout the month. As a child the patient associated the appearance of the lesions with the eating of tomatoes.

The lesions are painful necrotic ulcers of various shapes that appear on the buccal, lingual and laryngeal mucosa.

Examination of the blood on Jan. 25, 1936, showed 3,650,000 erythrocytes, 5,050 leukocytes and 65 per cent hemoglobin. The differential count gave the following results: polymorphonuclear neutrophils, 50 per cent; eosinophils, 3 per cent; lymphocytes, 35 per cent, and monocytes, 3 per cent. On April 20 there were 4,130,000 erythrocytes, 7,000 leukocytes and 61 per cent hemoglobin; the differential count showed 53 per cent polymorphonuclear neutrophils, 2 per cent eosinophils, 37 per cent lymphocytes and 6 per cent monocytes. On December 9 there were 6,550 leukocytes and the differential count showed 51 per cent polymorphoneuclear neutrophils, 3 per cent eosinophils, 37 per cent lymphocytes and 8 per cent monocytes.

Examination of the urine showed lactosuria, the reaction for lactose being 4 plus. Endocrine studies were unsuccessful. The basal metabolic rate was —11

per cent. Scratch tests for foods and inhalants gave negative results. Serologic tests of the blood gave negative results.

A roentgenogram of the chest showed a healed Gohn's focus (normal).

The patient also has complained of a lesion of the right breast, which resulted from her child's pinching her one year before while nursing. This lesion is composed of bluish nodules, varying in size from that of a pea to that of a bean, underneath the skin. One of these nodules was removed for histologic study.

DISCUSSION

DR. PAUL A. O'LEARY, Rochester, Minn.: I believe this patient has recurrent aphthous stomatitis, which may be of allergic origin. The name periadenitis mucosa necrotica recurrens is a cumbersome term to designate a disease that is quite removed from aphthous stomatitis, according to Sutton's description. The problem of diagnosing periadenitis mucosa necrotica recurrens lies in differentiating between it and tuberculosis or syphilis (gumma) of the mouth, rather than between it and these transient ulcers. Although allergy is usually considered to be the etiologic factor, in my experience it has been difficult to elicit the offending agent, even by using strict elimination diets.

DR. DAVID LIEBERTHAL: The lesions are very superficial. In consideration of this and of the frequent recurrences, I should classify this case as one of herpes simplex.

DR. OLIVER S. ORMSBY: As to the condition described by Sutton under the title used by Dr. Tobin and under the name of ulcus neuroticum mucosae oris used by Ioblowitz, I think the condition here is a special type of aphthous stomatitis. I have had examples of that which resisted treatment indefinitely. I think the condition shown by this patient is one of recurrent aphthous stomatitis. It is quite different from primarily nodular periadenitis recurrens. The nodules are deep seated and break down in a few days to form ulcers. Sometimes a number will develop, causing so much deep-seated and painful ulceration as to interfere with nutrition. I have seen the hemoglobin content reduced to 30 per cent and the patient become bedridden. The association of tuberculosis is suggested in some cases. In histologic sections it has never been possible to demonstrate tuberculosis in this connection, but I am sure there is such a special type of disease and that it is of much more moment than ordinary aphthous stomatitis.

DR. MAX S. WIEN: The oral lesions in this case lack the depth usually seen in the lesions in cases of periadenitis mucosa necrotica recurrens (Sutton). This patient also fails to give a history of sloughing, with the separation of a solid necrotic plug which leaves a crater-like ulcer extending well down into the corium. The only active lesion the patient shows now is on the right side of the tongue, and this is a superficial lesion that conforms in general to the type seen in chronic aphthous stomatitis.

Blastomycosis. Presented by DR. L. F. WEBER.

MINNESOTA DERMATOLOGICAL SOCIETY

JOHN F. MADDEN, M.D., *President*

Dec. 4, 1936

F. W. LYNCH, M.D., *Secretary*

Rosacea-Like Tuberculosis of the Skin. Presented by DR. ELMER M. RUSTEN, Minneapolis.

Mrs. L. F., aged 27, first noticed an erythematous scaly eruption on her face during the winter of 1935. By the next spring the eruption had become more

noticeable and extensive. She has received ten injections of gold sodium thiosulfate since she came under observation, in September 1936, but only slight improvement has resulted.

The eruption involves the forehead, the malar eminences, the nose and the chin and consists of numerous grouped brownish red papules, some of which are follicular. Some of the lesions have become pustular, and the areas involved are erythematous and show a slight scale. The papules do not disappear on pressure with the diascope.

The Wassermann and the Kline test and a test with a 1:1,000 dilution of tuberculin were negative. A histologic section is shown.

DISCUSSION

DR. H. E. MICHELSON, Minneapolis: I have felt for some time that rosacea-like tuberculid is a poor term. I think one should say that there is a rosacea-like distribution, the individual lesions being lupus miliaris, acnitis or follicular sarcoid. I think a tremendous fuss has been made about the term, and the mere presence of erythema and dilated vessels has interfered with the correct interpretation. For my part, I am willing to make a diagnosis of rosacea-like distribution in tuberculosis of the face and specify the type according to the analysis of the primary lesion.

DR. HAMILTON MONTGOMERY, Rochester: I agree with Dr. Michelson that rosacea-like tuberculid of Lewandowsky responds to treatment more quickly than lupus miliaris disseminatus (tuberculosis cutis follicularis disseminata). Acnitis, in my mind, is simply a form of papulonecrotic tuberculid occurring on the face and can be distinguished from the other two conditions. In my experience, lupus miliaris disseminatus on histologic examination always shows marked caseation necrosis, whereas rosacea-like tuberculid simply shows epithelioid tubercle and nonspecific inflammatory reaction. Clinically, in rosacea-like tuberculid the lesions are more superficial than in lupus miliaris disseminatus. I think the clinical appearance and the microscopic sections in this case confirm and support the diagnosis of rosacea-like tuberculosis.

I have been unable to correlate any tuberculin reactions as given in the literature with regard to these two conditions with the histopathologic observations. In rosacea-like tuberculid, which histologically resembles the picture of Boeck's sarcoid, a positive reaction to tuberculin frequently occurs in cases in which one would anticipate a negative reaction because of the positive anergy. In cases of lupus miliaris disseminatus, in which histologic sections show a frank tuberculosis architecture with marked caseation necrosis, one would expect to see a positive reaction to tuberculin, but the literature so far indicates that the opposite is true. More cases of both conditions need to be reported on in this regard.

DR. H. E. MICHELSON, Minneapolis: I doubt that caseation, observed microscopically, is a good criterion for differential diagnosis of types of tuberculosis. In lupus miliaris faciei all observers have reported caseation and a classic microscopic picture of tuberculosis; but if one takes sections of lesions at various ages, caseation has not been a constant feature, and in fact the early lesions and sometimes the late ones show signs of epithelioid tuberculosis looking precisely like sarcoid. I still believe that in classifying tuberculosis of the skin the most important points to be considered are the typical lesion, the microscopic picture and, above all else, the course—and by that I mean the course over months. I wish to sound a note of warning against the immediate classification of tuberculosis of the skin on short observation.

DR. ELMER M. RUSTEN, Minneapolis: When this patient was first seen the lesions were characteristic of lupus miliaris faciei. Later the skin of the face showed the transient erythema with a suggestion of telangiectasia. Differentiation between lupus miliaris faciei and rosacea-like tuberculid by the tuberculin reaction is difficult. The indication from some of the literature is that a hypersensitivity to tuberculin is usually present. Caseation, which is also a differential point, is absent in rosacea-like tuberculid and present in lupus miliaris faciei.

Sarcoid. Presented by Dr. Samuel E. Sweitzer, Minneapolis.

E. K., a woman aged 42, states that a "pimple" appeared near the right wrist about two years ago and has gradually enlarged at the border. She has two children living and well. A third child died of pneumonia, and she had one miscarriage six weeks after conception about twenty years ago. No other cutaneous eruptions have been observed.

There is a round superficial plaque 4 cm. in diameter on the lateral surface of the right forearm. The center is atrophic and white; the border is firm and reddish brown.

The Wassermann test and a test with a 1:1,000 dilution of tuberculin were negative. A histologic section is shown.

Pemphigus Vulgaris Showing Remission After Treatment with Germanin; Dermatitis Medicamentosa. Presented by Dr. H. E. Michelson, Minneapolis.

In July 1935 R. C., aged 52 years, had three loose teeth extracted. The following morning he noted unusual swelling and soreness of the gums, which continued to bleed and later ulcerated. He was given ten intramuscular injections at monthly intervals by his local physician, the last one being given in August 1936. In July he had a blister on his gum. In August there appeared on the left forearm a blister, which broke and left a denuded area. Gradually more bullae appeared, until at the time of his admission to the hospital, on September 25, there were present on the arms, body, groins and oral mucous membranes numerous shallow red ulcerative lesions varying in diameter from 0.5 to 3 cm. A severe conjunctivitis was present. A diagnosis of pemphigus vulgaris was made.

Treatment consisted of colloidal baths, mouth washes, extraction of teeth, application of boric acid ointment and administration of germanin. Fourteen intravenous injections of 1 Gm. of germanin were given between October 5 and November 17.

The lesions continued to be painful and to increase in number until November 10, when improvement, both subjective and objective, began. The bullae faded and became pigmented. On November 20 a new papular erythematous eruption appeared on the back of the neck, and within a few days it spread to the entire body.

On the patient's admission examination of the urine for albumin and sediment gave negative results. Since November 16 the urine has contained many fine granular casts, and faint traces of albumin and sugar have been present occasionally.

DISCUSSION

Dr. H. E. Michelson, Minneapolis: Dr. Fred Wise has used germanin for some time, and I think I can safely state that he at least believes it is the drug of choice for the time being in the treatment of pemphigus. My experience with the drug is limited, but I have used it in one case of pemphigus and in three cases of dermatitis herpetiformis. In each instance it has proved valuable, but for how long only time will tell.

Dr. John F. Madden, St. Paul: It seems that the papular, plaquelike eruption which appeared recently is more probably a drug eruption due to germanin than a recurrence of pemphigus.

Dr. Elmer M. Rusten, Minneapolis: I believe, as Dr. Madden does, that the acute eruption which is present now is probably due to drugs.

Dr. F. T. Becker (by invitation): Germanin was used in five cases when I was in Chicago; in one a remarkable cure resulted. I learned the other day, however, that in this case too there was a recurrence. In one case in which autopsy was performed there was complete destruction of the adrenal glands.

Carcinoma of the Heel. Presented by Dr. Samuel E. Sweitzer, Minneapolis.

Mrs. C. C., aged 72, first noticed a small purplish area on the bottom of her left heel in 1931. This became progressively larger and gave her some discomfort on walking. About one and one-half years ago the lesion was about the size of a small walnut and drained serosanguineous fluid at frequent intervals. In October 1936 the patient consulted a physician, who incised the lesion and obtained a small quantity of bloody material. On entrance to the hospital, in November 1936, she presented a draining sinus of the heel. This was débrided.

There is a scar from an incision about 4 cm. in diameter with a draining sinus in its middle portion on the left heel. No inguinal glands are palpable. A histologic section is shown.

DISCUSSION

Dr. Carl W. Laymon, Minneapolis: The history in this case is rather unusual. The lesion began as a sinus but clinically did not suggest malignant degeneration. Only after a histologic examination was a diagnosis of carcinoma made. The histologic appearance suggested that the lesion arose from a sebaceous gland; yet such glands are supposedly not present on the heels.

Dr. Hamilton Montgomery, Rochester: In 1931 Walther and I reported (*Arch. f. Dermat. u. Syph.* **163**:420 [Feb.] 1931) the occurrence of a lesion of the palm which clinically resembled verruca vulgaris but which histologically showed metaplasia of sweat ducts to form sebaceous-like glands containing mucin and simulating the glands in the stomach and esophagus. Thus, apparently sebaceous glands may be present occasionally on the palms, where normally they do not occur.

Diffuse Alopecia (Trichotillomania?) in a 3 Year Old Child. Presented by Dr. Samuel E. Sweitzer, Minneapolis.

Hereditary Hemorrhagic Telangiectasia. Presented by Dr. H. E. Michelson, Minneapolis.

Mr. L. W., aged 41, states that an erythematous eruption on the forehead was followed by lesions on the back and arms. There are numerous erythematous and telangiectatic macules on the face, over the scapulae and on the legs. Several lesions are present on the hard palate. Epistaxis of short duration occurs once a month and may be precipitated by excessive blowing of the nose. There is no history of similar conditions in other members of his family. The patient states that he had syphilis, for which he was treated. The Kolmer and Kline tests were reported to be negative. Studies of the blood cells showed no abnormality. There were 190,000 platelets per cubic millimeter. The bleeding time was three minutes and the clotting time four and one-half minutes.

DISCUSSION

Dr. John F. Madden, St. Paul: Although according to the patient other members of the family are free from the condition it probably is Osler's disease. The patient has generalized telangiectasia which is more marked on the face and mucous membranes of the mouth and nose, nasal hemorrhages, and a normal blood picture.

Multiple Pigmented Verrucae. Presented by Dr. Samuel E. Sweitzer, Minneapolis.

F. K., a woman aged 34, first noticed dark brown lesions on her abdomen about two months after undergoing an exploratory laparotomy in 1926. This eruption was first present about the operative scar, but the lesions gradually increased in number until they were present over most of the anterior surface of her trunk. During her last pregnancy, in 1933, the lesions became darker, and she believes that a few more developed, especially on her neck. They have become less colored and less noticeable during the past three years.

She has small dark brown papules from the size of a pinhead to that of a small pea over the abdomen, chest and neck. A histologic section is shown.

DISCUSSION

DR. HAMILTON MONTGOMERY, Rochester: The histologic picture is typical of verruca senilis. The case is of interest because of the numerous lesions developing in a patient in the early thirties and because clinically they might be mistaken for pigmented nevi. As verruca senilis is simply a delayed epithelial nevus, it is not surprising that the patient also shows other nevi in the form of tiny pedunculated fibromas on the neck. The condition is not chloasma.

DR. L. H. WINER, Minneapolis: The section shows the typical textbook picture of verruca senilis, but clinically the pendulous verrucae of the neck do not look like verrucae seniles.

Verrucous Nevus. Presented by DR. SAMUEL E. SWEITZER, Minneapolis.

Mrs. D. A., a Finnish woman aged 29, states that when she was about 15 years old a brown lesion appeared on the left breast. This has not grown in the past ten years. The patient is also being treated for latent syphilis.

She presents a brown verrucous nevus surrounding the nipple of the left breast and covering its lower surface. There are no ulcerated areas and no satellite lesions. A histologic section is shown.

DISCUSSION

DR. F. W. LYNCH, St. Paul: This eruption has some resemblance to the bilateral pigmented verrucous nevoid lesions observed in the patient with mycosis fungoides who was presented at the meeting of the Mississippi Valley Dermatological Society. A somewhat similar case was recently presented by Barber (*Brit. J. Dermat.* **48**:506, 1936). The title "keratosis areolae mammae neviformis" proposed by Otto and Moncorps does not seem justified in the present instance, as the involvement is unilateral and is not limited to the areola as it was in the patient presented by Dr. Michelson several months ago.

DR. H. E. MICHELSON, Minneapolis: I think that this lesion should be completely ablated, either by surgical or by electrical methods.

Lichen Planus of the Eyelids. Presented by DR. CARL W. LAYMON, Minneapolis.

Miss V. B., aged 32, had an eruption on both eyelids in June 1936. The eyelids never became swollen, and there was no weeping at any time.

On both upper eyelids are multiple tiny violaceous papules which coalesce to form a plaque. The individual lesions can be made out at the border. There is also a brown pigmentation at the periphery of the plaques, which probably followed involution of the active lesions. There is no eruption on the wrists, ankles or buccal mucosa.

DISCUSSION

DR. H. E. MICHELSON, Minneapolis: One should not be misled by a reticular pigmentation of the eyelids which looks like erythema ab igne. In a limited experience, to be sure, I have made a diagnosis of lichen planus in cases in which such pigmentation was present and have been able to confirm my suspicions by histologic examination. I have seen other forms of lichen planus on the eyelids also, especially the annular type.

DR. CARL W. LAYMON, Minneapolis: When I first saw the patient the dermatosis on the lids was of two months' duration. No therapy other than the application of ointments had been employed. From a superficial survey of the literature, lichen planus of the lids is uncommon in conjunction with lesions elsewhere on the body, and especially rare when limited to the lids. In a series of two hundred and seventy cases which Little studied lesions were present on the face in only

ten and involvement of the lids was not even mentioned. He reported his series of cases before the American Dermatological Association in 1919.

When this patient was first examined typical tiny lichen planus papules could be seen on the lids in conjunction with the brown retiform pigmentation. This pigmentation probably represents a retrogressing stage of the process.

DR. L. H. WINER, Minneapolis: I have also observed two cases in which lichen planus involved the eyelids secondarily. In the first case the original lesions appeared on the middle of the anterior tibial surface. A section was made and histologic examination showed lichen planus. Two weeks later the patient came in with definite lichen planus on the upper eyelids. The second case was observed in collaboration with Drs. Becker and Laymon last spring. In both cases typical lichen planus was present.

Morphea. Presented by DR. CARL W. LAYMON, Minneapolis.

M. R., a woman aged 24, first noticed a round waxy plaque 2 cm. in diameter on the lateral surface of the right breast two years ago. The lesion is surrounded by a faint violaceous areola. There have been no symptoms. A histologic section is shown.

Morphea. Presented by DR. SAMUEL E. SWEITZER, Minneapolis.

Miss H., aged 18, presents numerous plaques on the abdomen and legs. These lesions are not elevated and do not feel indurated. They are whitish pink. The eruption appeared on the right hip about a year and a half ago. The lesion on the hip now looks atrophic. A histologic section is shown.

DISCUSSION

DR. CARL W. LAYMON, Minneapolis: The lesions in Dr. Sweitzer's patient involve the abdomen rather extensively. The hands and face, however, are entirely normal. Sellei has termed this condition diffuse scleroderma, whereas in the opinion of most observers it is circumscribed scleroderma of wider extent than is usual. This type of scleroderma occasionally undergoes spontaneous involution; this may explain some of the favorable results which have been reported to follow therapy with pancreatic preparations.

DR. HAMILTON MONTGOMERY, Rochester: In answer to the question about elastic tissue fibers in scleroderma, I wish to say that when Gans was in this country he emphasized to me that there apparently is a regeneration or new formation of fine elastic fibers stretching out through the scar tissue. I have several sections of diffuse scleroderma which show this. In Ebert's study of striae distensae there was also some evidence of new formation of elastic fibers (ARCH. DERMAT. & SYPH. **28**:825 [Dec.] 1933).

Lichen Sclerosus et Atrophicus. Presented by DR. H. E. MICHELSON, Minneapolis.

S. K., a woman aged 49, first noticed lesions on the wrists in March 1936. She had never suffered from eruptions of any kind before. There were no symptoms, and the lesions were noninflammatory from the beginning.

The eruption is located on the flexor surfaces of the wrists, beneath the breasts, on the lower portion of the abdomen, on the groins and on the dorsal surfaces of the feet. The essential lesions are achromic scarcely elevated round papules from 1 to 3 mm. in diameter. Follicular dilatation and plugging can be seen in a few areas. None of the lesions shows any tendency toward the lilac color of lichen planus. The mouth is clear. The labia majora and minora pudendi are smoother than normal and white. A histologic section is shown.

DISCUSSION

DR. L. H. WINER, Minneapolis: I think the condition is definitely lichen sclerosus, not lichen planus. The definite characteristics are edema and loss of

elastic tissue in this homogeneous area. It was compared by von Zumbusch in his article to a form of atrophy because of the loss of elastic tissue in the epidermis. In this case the elastic tissue showed a change in the upper portion of the connective tissue and papular bodies, and the upper portion of the reticular tissue was homogeneous. In these areas the elastic tissue was destroyed. I have not observed any case of lichen planus in which the elastic tissue is destroyed the way it is in typical atrophy. For that reason I cannot compare microscopically lichen sclerosus with lichen planus. I agree with Dr. Montgomery that lichen sclerosus is not lichen planus; it belongs in the group of atrophies, being either the scleroderma type of or, more probably, typical atrophy.

DR. CARL LAYMON, Minneapolis: Some of the German observers have expressed the belief that lichen sclerosus et atrophicus is of two types. The primary type is a disease sui generis, while the secondary type, even if it is clinically identical with the first, may represent an atrophic terminal stage of lichen planus.

Erythema Multiforme. Presented by DR. SAMUEL E. SWEITZER, Minneapolis.

Dermatitis Medicamentosa. Presented by DR. SAMUEL E. SWEITZER, Minneapolis.

Phenolphthalein Eruption. Presented by DR. H. E. MICHELSON, Minneapolis.

This married woman, aged 30, who is three months pregnant states that she took cathartics for the past four years and had a recurrent eruption. She states that four days before she was examined she chewed feenamint. Examination at that time revealed a mahogany-colored patchy eruption over the body and some lesions about the rectal mucosa. Three days after she ceased taking that drug she was markedly improved.

DISCUSSION

DR. CARL LAYMON, Minneapolis: Dr. Michelson's case is the most striking example of phenolphthalein eruption that I have ever observed; practically all of the cutaneous changes caused by this drug are present. Besides the ordinary circumscribed purple plaques there are multiple vesicles and bullae about the mouth and genitals. I did not, however, note the blue staining of the lunulae of the finger-nails which Campbell reported as being occasionally caused by phenolphthalein.

DR. HAMILTON MONTGOMERY, Rochester: The clinical picture of the so-called classic seasonal erythema multiforme can be duplicated by eruptions caused by various drugs, especially phenobarbital and phenolphthalein. Either of these drugs can cause extensive bullae and ulcerations of the mucous membranes of the mouth and genitalia.

Molluscum Contagiosum (Lesions of Giant Type). Presented by DR. SAMUEL E. SWEITZER, Minneapolis.

Book Reviews

Light Therapy. By Frank Hammond Krusen. Second edition. Price, $3.50. Pp. 205, with 42 illustrations. New York: Paul B. Hoeber, Inc., 1937.

In a book of 205 pages on the general subject of light therapy it would not be possible to discuss the treatment of diseases of the skin at great length. From this standpoint the book by Krusen is of comparatively little value to the dermatologist. Its value lies in the space devoted to the physics and physiology of light therapy in general and to the various types of apparatus and the technic of using them. In the second edition the chapter on "Physiology" has been enlarged, and new illustrations have been added.

In the discussion on the source of light used in therapeutics adequate space is devoted to sunlight and to quartz mercury vapor arc, carbon arc and quartz mercury vapor glow lamps. Other less important and little known apparatus for light therapy receive less attention.

In the concluding chapter the author freely admits the shortcomings of light therapy. He states that it is still in a chaotic state and that ultraviolet therapy in particular has been recommended for an absurdly large number of conditions. He states properly that "knowledge of the mechanism of the source and of one or two simple laws is essential for correct therapeutic use of light rays."

Many authorities are freely quoted, including Laurens, Coblentz, MacKee, Kovacs and others. The printing and appearance of the book are attractive. The 42 illustrations in black and white are reproduced partly from photographs and partly from drawings and in general are all that could be desired.

Warzen, Papillome und Krebs. By Joseph Baló and Béla Korpássy. Edited by the Royal Hungary Franz-Josef University. Price, 20 marks. Pp. 303, with 111 illustrations and 27 tables. Leipzig: Johann Ambrosius Barth.

The existence of so-called precancerous stages and facts obtained in research concerning carcinogenic substances stimulated the authors to compare the behavior of verrucae, papillomas and carcinomas and to investigate their relations, analogies and transitions.

The subjects of their study were 1,480 school children and university students varying in age from 6 to 22 years and 1,300 patients examined at necropsy. Some of the conclusions they drew follow:

In man verruca vulgaris, verruca plana juvenilis, condyloma acuminatum and laryngeal papilloma are caused by a filtrable virus. This source is not yet established for papillomas of the eye, the mouth, the nose, the urethra and the external canal of the ear. In animals filtrable viruses play a rôle in the infectious papillomatosis of hares, the oral papillomatosis of dogs and the verrucae of cattle. Both in man and in animals verrucae and papillomas which are produced by a filtrable virus occur in the young.

Papilloma of the bladder may be produced by aniline dyes or by-products of metabolism within the body which cause epithelial proliferation. The authors believe that in the origin of senile warts special substances excreted by the sebaceous glands play rôles. These substances are more frequently and more abundantly present in older persons—which explains the increased incidence of senile warts with age.

Leukoplakia of the esophagus, polypous adenoma of the colon and senile warts all increase in frequency with growing age. The authors found that carcinoma develops three times as frequently in persons afflicted with senile warts as in persons who are free from senile warts, and they look on verruca senilis as an expression of disposition to cancer.

The classification of papillomas of the urinary bladder as "benign papillary fibroepithelioma," "fibroepithelioma with irregular epithelial covering" and "papilliform carcinoma" may also be used in regard to papillomas of the mouth, the larynx and the nasal cavity.

This well written monograph should be of interest to the dermatologist. The statistical point of view from which the authors approach this important topic could be employed with success in other difficult dermatologic problems.

The Chemistry of Natural Products Related to Phenanthrene. L. F. Fieser. New York: Rheinhold Publishing Corporation, 1937.

Fieser's review of the organic chemists' and the biochemists' achievements in a field now holding their attention reveals a romance behind the drab formulas of chemists' reports. To suspect the revelation of nature's way of building functionally essential chemical units is to thrill with the forbidden practice of peeking behind the curtain.

The disclosure of phenanthrene, an isomer of anthracene (carbon condensation ring structure) as chemical background for the elaboration of some hormones ("sex"), vitamins, cancer-producing hydrocarbons, heart poisons and alkaloids, including morphine, assures by the very nature of the suspected relationship a more than sympathetic interest from practicing physicians.

Unfortunately, the present status of this knowledge does not as yet permit a correlation with the clinic in the wider sense of clinical practice or philosophy.

CORRECTION

In the article by Dr. Howard J. Parkhurst, "Trombidiosis (Infestation with Chiggers)," in the June issue (Arch. Dermat. and Syph. **35**:1011, 1937), the legends for figures 5 (p. 1022) and 6 (p. 1023) are transposed; in other words, the legend under figure 5 should be under figure 6 and that under figure 6 should be under figure 5.